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SOME MEDICAL ASPECTS OF FLYING.

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The following article comprises the substance of a lecture delivered before the Science Club at New College, Oxford. It does not represent any original research on my own part, my knowledge being derived from the literature and from association with several men who have done extensive and valuable work on the subject. In view of the probable great development of civilian aviation in Australia, it should be of interest, as it summarizes a large amount of research and literature not ordinarily available to medical men in Australia. For the nervous and circulatory manifestations I am chiefly indebted to the article by Henry Head, published as No. 28 of the special report series of the Medical Research Committee. The respiratory manifestations are taken almost entirely from the work of Haldane, who kindly looked through the manuscript of this article and made several helpful suggestions.

Introductory.

In the rapid advances in aviation during the last few years, general interest has chiefly been centred on the machine and its capabilities. Few except those immediately interested have even thought of the man in the machine and the special problems connected with him. The selection and care of the aviator has become a very interesting and highly specialized branch of medical science and involves a knowledge of physiology beyond that usually possessed by the ordinary general practitioner.

For the purpose of discussion, we may divide the subject under three main headings, although, in actual practice, these factors interact with one another. They are:—

(1) The sense of stability and balance, depending upon the nervous system and certain special sense organs.

(2) Effects on the circulation caused by increase of "g," i.e., the acceleration due to gravity.¹

(3) Effects of lessened barometric pressure. These, with the exception of a few almost negligible mechanical effects, concern the respiratory system and it is with them that I mainly propose to deal in this paper. The other two factors I shall consider very briefly.

Sense of Stability and Balance.

The knowledge of position in space is due to afferent impulses from:

(a) The optic nerves.

(b) Nerve endings in muscles and joints—the kinæsthetic sense which makes us aware of the position of our limbs.

¹ I use this expression in the Einsteinian sense. In ordinary Newtonian mechanics "g" is regarded as constant for terrestrial systems and the increased forces in an aeroplane are due to the superadded effects of inertia, as in the upward portion of a loop or "zoom," and of centrifugal forces, as in a banked turn or a spin. In some cases the total force may be four times that of the ordinary effect of gravity.

(c) The semi-circular canals—these are orientated according to the three planes of spatial dimension.

Any abnormality of the semi-circular canals readily causes giddiness, a frequent source being a cold in the head, producing blockage of the Eustachian tubes. The inequality of pressure thus occasioned on the two sides of the *membrana tympani* causes acute discomfort and giddiness, as is well shown in the following case quoted by Henry Head. (1)

Second Lieutenant, aged 19. He first went into the air in September, 1917, and had flown for thirteen hours without discomfort. In December, 1917, he caught cold when sleeping in a canvas hangar with snow upon the ground. He went up one morning with a cold in the head and suddenly "felt dizzy"; his head seemed "to be whizzing round inside" and he "felt strange." He went up frequently during the next few days and was "giddy" on several occasions. He did not vomit and was not nauseated. Throughout this period he was deaf.

He went away on leave and recovered entirely. On returning to his squadron he flew solo for nine hours in perfect comfort and graduated on April 9, 1918.

He was then transferred to another squadron to fly service machines. Here he caught another cold and one day, when in the air whilst suffering from headache and running at the nose, he felt himself becoming giddy at 3,000 feet. He shut off his engine, but does not know how he came down. He was flying an "Avro" and, according to the report of his Wing Commander, started to spin. He stalled the machine at about 30 feet and broke some struts in landing, but was not hurt.

Sydney Scott (2) has shown from careful examination of a large number of pilots at the front that abnormal conditions in the middle ear are amongst the commoner causes of giddiness in the air. This vertigo must be distinguished from true syncope, which will be dealt with under the circulatory heading.

Some persons are under ordinary circumstances abnormally subject to giddiness or disturbances of equilibrium. Many of them in childhood were unable to swing without discomfort and were sick on a train journey. This tendency may often be overcome, but in such cases regression may occur from causes such as general infective illness, air staleness, toxæmias and psychic shocks. The same causes may produce giddiness in previously normal persons. Various cases illustrating these points have been quoted by Henry Head (*loc. cit.*) and in some instances the results may be disastrous.

Effects on the Circulation Due to Increase in "g."

The supply of blood to any part of the body can be varied according to the needs of the moment. This is brought about by the contraction or relaxation of the muscular coat of the arteries under the control of the vaso-motor nerves. The vascular tone prevents the blood from gravitating to dependent parts; this made it possible for our prehistoric ancestors to assume the erect posture. A person in poor condition loses this tone to some extent. This explains the feeling of "light-headedness" due to partial cerebral anæmia on rising from the recumbent or the sitting to the erect posture after an exhausting illness. This is similarly shown in animals. If a hutch rabbit be

suspended by its ears, the blood gravitates to the dependent parts and the animal rapidly dies from anæmia of the brain. This does not occur in wild rabbits.

Now let us consider how these facts affect an aviator. In certain aerobatic "stunts" "g" may be very greatly increased, thus throwing a very great strain on both the machine and the vascular system of the aviator. In a perfectly fit and healthy man this strain may not be formidable and the blood vessels may be equal to the task of maintaining the normal circulation, but in the case of a man who has become "stale" from illness, prolonged strain, or neurasthenia, the results may be disastrous, owing to the pilot fainting in the air. This sometimes occurs in normal persons. Henry Head (*l.c.*) quotes the following case:

Major V.B., a highly expert pilot, had the following experience whilst carrying out some experiments for the Technical Department. After an unsuccessful attempt to discover the smallest banked circle in which a "Sopwith" triplane could be spun, he got the machine into a turn at 3,000 feet. On starting the second turn "the sky appeared to go grey." "A mist gradually arose like going under an anæsthetic" and he "fainted." It was not an unpleasant sensation. When he came to himself he was flying over a village about a mile away from the place of the experiment. The unconsciousness must have lasted about 20 seconds. During the first turn "g" reached 4.5,² during the second 4.6. The turn was of about 140 feet at a speed of 114 miles an hour. This pilot found experimentally that whenever the acceleration ("g") was pushed up to a high figure, he experienced the characteristic darkening of the sky which was preliminary to fainting. On another occasion he was looping and diving a "D.H. 4" during a mock fight, when these preliminary sensations reappeared. He realized his danger and struggled against losing consciousness. First came a feeling of pressure in the head; then a mist gradually approached and spots rose before his eyes. He felt faint chiefly at the bottom of the loop and was quite conscious at the top. Then "daylight" returned during the dive and he came down about three minutes later feeling perfectly well. This preliminary sensation is distinctly pleasant, but is associated with inability to make an effort; "it requires a definite struggle to right the machine."

So long as the machine is one which will come out of a spin when the controls are released, the pilot may become unconscious and yet no accident happen. But if a definite act be required to terminate the rotation, as on a "Camel," it is obvious that the machine may spin into the ground, because the pilot has been rendered incapable of the necessary voluntary effort. The more rapid the turns, the more likely it is that this condition may be induced and it is not improbably responsible for some of the accidents on very delicate scout machines, such as "Camels."

Effects of Diminished Barometric Pressures.

Paul Bert, (3) the brilliant French physiologist, was the first to demonstrate, in 1878, that the untoward effects of lowered barometric pressure are wholly dependent upon the decreased partial pressure³ of oxygen. He showed that in pure oxygen at a pressure of 21% of an atmosphere life goes on in

² *i.e.*, 4.5 times the normal force of gravity. (Determined by a self-recording dynamometer attached to the machine.)

³ The partial pressure of oxygen in any gas mixture is represented by the formula $\frac{O_2}{100} \times (b - t)$, where b = barometric pressure in mm. of mercury and t = pressure of aqueous vapour. This latter in alveolar air fully saturated with water vapour at body temperature is 46 mm. of mercury.

practically the same manner as in the air which contains 21% of oxygen at ordinary atmospheric pressure. So also the breathing of an artificial gas mixture containing only half the percentage of oxygen that ordinary air contains produces the same effects at sea level as the breathing of pure air at an altitude of about 20,000 feet where the barometric pressure is reduced by one-half. Hence the physiology and pathology of oxygen want may be investigated in various ways, by ascending in aeroplanes or balloons, climbing mountains, breathing air diluted with nitrogen, and by breathing air in a partially exhausted steel chamber. A series of experiments by this latter method has been published by Haldane, Kellas and Kennaway (4) in a recent number of the *Journal of Physiology*. The breathing of air diluted with nitrogen is a useful method of experimenting, because only the subject and not the observer is submitted to oxygen want. It has been used extensively by many observers (5) in testing airmen for ability to withstand oxygen want. A modification is the rebreathing of a limited volume of air with an arrangement for the absorption of CO₂; as the oxygen is gradually used up by the subject, he is exposed to progressive oxygen want and his symptoms may be observed.

In order to obtain a proper understanding of oxygen want and how it arises, it is necessary to revert to a few elementary facts about the physiology of respiration. The body possesses no capacity for storing oxygen and is entirely dependent on the maintenance of the supply from moment to moment. Total deprivation of oxygen causes speedy death. Severe partial deprivation causes rapid unconsciousness and, if continued, permanent damage to nervous and other tissues. Thus, a person suffering from carbon monoxide poisoning may remain unconscious and even die long after the CO has been removed from his blood and the normal oxygen supply fully restored. Slight oxygen want may be insidious in onset and by the production of a vicious circle may lead to chronic illness and even death.

The regulation of the pulmonary ventilation is performed by the respiratory centre, which sends out rhythmical nervous impulses to the muscles of respiration, the exciting cause being the maintenance of the normal alkalinity (hydrogen ion concentration) of the blood flowing through the centre. A slight lessening of this alkalinity, almost too slight to be measured by the most delicate chemical and physical tests, is sufficient to increase considerably the rate and depth of breathing. This increase causes a washing out of CO₂, which acts as an acid in the blood, until the reaction of the blood returns to normal. On the other hand, anything which increases the alkalinity of the blood, results in lessened pulmonary ventilation and corresponding increase of CO₂, which restores the balance of acid and alkali in the blood.

In the lungs the blood in the capillaries is separated from the air spaces only by a thin membrane formed by the alveolar epithelial cells. Through this membrane the gaseous exchange takes place. The nature of this gaseous exchange has been the subject of a very long physiological controversy between the supporters of the diffusion theory and of the secre-

tion theory. Evidence at present points to the conclusion that diffusion is sufficient to account for the whole of the gaseous interchange of a normal resting individual at ordinary atmospheric pressure, while active secretion of oxygen inward against the normal diffusion pressure by the lung epithelium occurs under special conditions, *i.e.*, during severe muscular work and after acclimatization to oxygen want.

Let us now consider what happens when a person is suddenly subjected to a moderate degree of oxygen want, such as occurs at an altitude of 18,000 feet. The immediate effects are marked tachycardia and hyperpnoea, caused by the direct stimulus of oxygen want. The hyperpnoea quiets down after a few minutes, owing to the washing out of CO_2 from the blood and consequent "alkalosis." The pulse usually remains somewhat increased. Most persons become somewhat blue, but the degree of cyanosis does not seem to have any relation to other symptoms. For example, in one experiment in the steel chamber, Dr. Haldane, when quite helpless from oxygen want, did not appear more than slightly cyanosed, whereas Dr. Kellas was sufficiently normal to take pulse-rates, observe the barometer and write down his notes, in spite of the fact that he was very cyanosed. The cyanosis, pulse-rate and pulmonary ventilation are greatly increased on the slightest exertion. If the exposure to oxygen want is continued for several hours, true mountain sickness comes on, with all the previously mentioned symptoms, together with headache, vomiting, diarrhoea, mental depression and irritability. If a person remains exposed to such an altitude for a few days, acclimatization occurs. This is brought about by several factors:

(a) Increase in the oxygen carrying capacity of the blood. On Pike's Peak (altitude 14,093 feet) the hæmoglobin percentage in the case of Douglas rose from 105 before acclimatization to over 120 after acclimatization. Similar rises have been frequently found by other observers.

(b) Retention of some of the acid products of metabolism, resulting in a lowered alkaline reserve, so that in maintaining the balance of acid and alkali which determines the hydrogen ion concentration of the blood, the respiratory centre responds to a lower threshold of CO_2 tension. This lowered alkaline reserve would be interpreted by some as an "acidosis," but in reality it is accompanied by an alkalosis, due to the excessive removal of CO_2 , when the respiratory centre responds to the direct stimulus of oxygen want. The alkalosis is incontrovertibly demonstrated by the increased alkalinity of the urine and the lessened formation of ammonia by the liver (*vide* Haldane, Kellas and Kennaway).

(c) Active secretion of oxygen by the lung epithelium.

(d) Possibly an increase in the circulation rate. If the ascent be made gradually, acclimatization occurs without symptoms of mountain sickness appearing. Moreover, persons in good physical training can often stand altitudes without experiencing mountain sickness, except perhaps in a very mild form.

The mental symptoms of oxygen want are of very great interest and are dramatically described by Paul

Bert (quoted by Douglas, Haldane, Henderson and Schneider) in the famous balloon ascent of Tissandier, Sivel and Crocé-Spinelli, which ended fatally for the latter two. This and other well known instances show that the mental symptoms of severe oxygen want are dangerous and insidious. There is dulling of sensation, combined with a complacent feeling of well being and exaltation, which may continue even after the subject is physically quite helpless. Thus Sivel and Crocé-Spinelli, although they had oxygen tubes at hand, did not realize their danger and were paralysed before they could raise the tubes to their mouths. Often there is a disregard of danger and a fixed determination to go higher (*vide* Haldane, Kellas and Kennaway, *loc. cit.*).

To what extent do these symptoms occur in aviators and how can they be prevented? At very high altitudes (20,000 feet and over), unless air enriched with oxygen is provided, paralysis and even unconsciousness may occur, but that may not prove fatal, because the plane will fall and the pilot recover in sufficient time to save himself. At altitudes between 10,000 and 20,000 feet there is considerable oxygen want, resulting in impaired efficiency, although the pilot may notice few, if any, subjective sensations. Hence, in a fight at these altitudes a pilot provided with oxygen will, *ceteris paribus*, vanquish an opponent not similarly provided. At ordinary flying altitudes in normal fit individuals there will probably be no symptoms of oxygen want, except under certain pathological conditions, which we shall speak of in connexion with air staleness. Various means have been devised for the supply of oxygen to aviators, some very complicated, with automatic anaeroid valves which are liable to go wrong, other simple, but equally effective. The essentials are lightness and an adequate supply of oxygen. One of the early forms of mine rescue apparatus has been in use for fifteen years and is quite effective. Four litres of oxygen per minute, measured at ordinary atmospheric pressure, are sufficient up to 30,000 feet. (Measured at one-third of ordinary pressure, twelve litres per minute.) The German used liquid oxygen in a Dewar flask: this has the advantage of eliminating the heavy cylinders. Nitrogen has a lower boiling point than oxygen, so that liquid air rapidly loses the greater part of its nitrogen, leaving almost pure liquid oxygen. This fact is being more and more made use of and liquid air will doubtless be the main source of therapeutic oxygen in the future. Pure oxygen is unnecessary and, if administered for any time, has a harmful, irritant effect on the lungs.

Air Staleness.

This condition is not a new disease, but is really neurasthenia under a new name. Our knowledge of neurasthenia is very imperfect and the co-ordination of the underlying physical causes still requires a great deal of patient and systematic work. Several facts stand out:

(i.) Circulatory manifestations produced by vasomotor disturbances. These have been commonly observed in soldiers suffering from war neurasthenia and consist of dermatographia, irregular flushes, abnormal perspiration and syncope. They may be due

to toxæmia, anoxæmia, alteration of internal secretions and exhaustion.

(ii.) Shallow breathing and anoxæmia. The importance of this has been shown in several papers by Haldane, Meakins, Priestley and myself. (7) The rapid shallow breathing observed in many cases of neurasthenia and "soldier's heart," particularly when the patients have been gassed, has been definitely proved to be both a cause and a result of anoxæmia. These persons are abnormally susceptible to oxygen want. Dr. Priestley tested several of them in the steel chamber and found that exposure to a pressure corresponding to an altitude of 5,000 feet produced severe symptoms of oxygen want. Hence a pilot who suffers from the shallow breathing complex or who reacts to oxygen want by rapid shallow breathing, may be a source of great danger. Inability to hold the breath for more than five or ten seconds is an important diagnostic sign of this condition.

(iii.) Nervous disorders. The effect of toxins, fatigue and of anoxæmia on the central nervous system may be severe. The vaso-motor and respiratory centres are readily affected; hence the symptoms mentioned above. It has been shown in experiments by Haldane, Priestley and myself (8) that fatigue of the respiratory centre is a potent cause of anoxæmia. The shallow breathing complex is of reflex origin.

(iv.) Changes in the internal secretions. In war neurasthenia the thyroid is frequently noticed to be enlarged. Some cases may even resemble early cases of Graves's disease. Whether the condition is true hyperthyroidism or merely the response to a call for increased secretion is impossible to tell in the present state of our knowledge. The work of Dr. Kellaway (9) has shown the effect of anoxæmia on adrenal secretion.

From the above it can readily be seen that the nervous and vascular strains and the anoxæmia of prolonged flying, especially when combined with toxic effects following illness, may give rise to a series of vicious circles culminating in a "crash." Treatment consists mainly in rest, followed by open-air exercise, which, however, should not be pushed, as over-training is closely akin to air staleness. In cases where rapid shallow breathing is a marked feature, the continuous inhalation of oxygen, one or two litres per minute from the Haldane apparatus (6) at night-time, has proved of great value. The additional leave granted to aviators during the war has undoubtedly been a great factor in preventing considerable wastage of personnel and material.

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(4) Haldane, Kellas and Kennaway—*Journ. of Physiol.*, 1919, LIII., p. 181.
(5) Bazett—Med. Research Committee, Reports of the Air Medical Investigation Committee, Nos. 5 and 6.
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(7) Haldane, Meakins and Priestley—Med. Research Committee, Report of Chemical Warfare, Med. Committee, No. 11; *Journal of Physiology*, 1919, LII., pp. 420 and 433; Davies and Priestley, *British Med. Journal*, October, 4, 1919.
(8) Davies, Haldane and Priestley—*Journ. Physiol.*, 1919, LIII., 60.
(9) Kellaway—Med. Research Committee, Special Report Series, No. 37, VIII.; *Journ. Physiol.*, 1919, LIII., 211.

All the above literature should be studied by medical officers responsible for the care of aviators.⁴ The whole history of the subject forms a splendid example of the value of a sound knowledge of human physiology applied to problems in practical medicine. Physiology before the war was becoming too academic and detached from practical medicine, but thanks to the work of Dr. Haldane, Sir James Mackenzie and others we seem to be approaching a new era.

EXPERIENCES WITH THE SHIPWAY ANÆSTHETIC APPARATUS.⁵

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The Shipway anæsthetic apparatus, though of comparatively recent introduction, is merely the adaptation of two old principles.

Firstly there is the blowing of air through a bottle containing the anæsthetic, the commonest example of which is the Junker chloroform inhaler, which was introduced about 1868. Junker (1) himself failed when using it with ether, as icicles formed in the face piece, and said: "My apparatus is utterly unfit for ether." Tyrrell (2) in 1897 used the Junker bottle for adding ether vapour during chloroform administration and called it a "double bottle method."

Secondly it involves the use of warmed ether vapour. This has been used from time to time for more than 50 years.

By some it was deliberate. Clover (3) in describing his double current inhaler says that "the supply of ether vapour" is "rendered more uniform by attention to its temperature, which was kept within limits by causing the expired air to pass through the ether vessel in a kind of worm."

In his second model (4) he provided "a reservoir of water to prevent the temperature of the ether becoming too low."

Hawkesley's inhaler (5) had the ether bottle "half immersed in water heated to 100° Fahr."

Ormsby (6) used a sponge wrung out in hot water. Towels wrung out in hot water have often been used with open ether.

By others the use of warmed ether vapour was accidental, being caused by more or less re-breathing in the various closed methods and in the semi-open

⁴ The Medical Research Committee reports of the Air Medical Investigation Committee are in course of revision and will shortly be republished in a single volume by H.M. Stationery Office.

⁵ Read at a Meeting of the South Australian Branch of the British Medical Association on May 27, 1920.

inhalers and cones associated with the names of Silk, Allis and Fergusson.

In each case the sole reason seems to have been the prevention of excessive cooling of the ether which would interfere with the continuous supply of the anaesthetic.

About fifteen years ago Gwathmey (7) and Davis (8) began to investigate the problem on scientific lines. They experimented on both animals and human beings, using warmed vapours while preserving the open character of the anaesthesia. Gwathmey experimented on animals and chiefly used chloroform, or nitrous-oxide and oxygen, administering them both at room temperature and at 37.8° C.. He found that, whereas it took 6.57 minutes on the average to kill 16 animals with chloroform at room temperature, it took 20.35 minutes to kill 17 animals with warmed chloroform vapour.

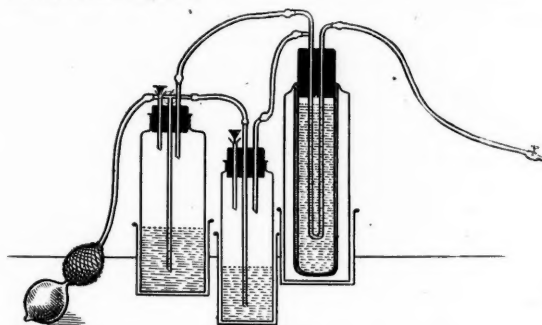


FIGURE I.
Shipway's Apparatus.

Fewer experiments were made with ether, but enough to convince him that warm ether vapour is twice as safe as cold.

Davis found that in 140 patients anaesthetized by open ether, there was an average loss of body temperature of 0.56° C. against an average loss of 0.16° C. in 26 patients anaesthetized by warm vapour. The temperatures were taken by rectum immediately before and after anaesthesia. In prolonged operations with much exposure of the patient, the lowering of the temperature was even more marked.

Kelly (9), Coburn (10), Pinneo (11) and others introduced apparatus for delivering warm vapour, but they were not well known nor much used.

Early in 1916 Shipway (12) described his apparatus and gave a detailed account of a few cases. His apparatus was simple and fairly portable. He made for it claims of greater safety, lessened shock, maintenance of body temperature and quicker recovery from anaesthetic.

It was introduced by Marshall (13) at a casualty clearing station on the Flanders front for patients requiring severe operations when they were already partially collapsed. From this casualty clearing station its use spread to many other units.

The apparatus does not yet seem to be well known in South Australia.

As there may be some members present to whom it is unknown, I will briefly describe it.

There are four principal parts, namely:—

- (1) A hand bellows.
- (2) An ether bottle.
- (3) A Junker chloroform bottle.
- (4) A warming chamber (vacuum flask).

In the cork of the ether bottle are:—

- (a) A filling funnel.
- (b) An efferent tube.
- (c) A regulating three-way tap, the long limb of which passes into the ether. To the proximal of the two short limbs of this is attached the hand bellows. The distal limb is connected by rubber tubing to the afferent tube of the Junker bottle.

The efferent tube of each bottle is connected to the afferent limb of a metal U tube, which is immersed in warm water contained in the thermos flask.

The efferent end of this U tube carries about 70 cm. of rubber tubing (14).

By regulating the three-way tap, air can be pumped so as to deliver a vapour of ether, chloroform, or a mixture of the two. The whole apparatus is contained in a metal clover-leaf stand.

The original stand had larger bottle-containers which could be filled with hot water and used to facilitate vaporization. This does not seem to be necessary.

My first experience of the apparatus was in October, 1919, at No. 7 Australian General Hospital. Here it was used for plastic facial cases operated upon by Colonel Newland.

Since that time I have used the apparatus in 86 cases, which comprise:—

	Cases.
1. Bone graft of jaw	8
2. Bone graft of skull	1
3. Cartilage grafts	7
4. Rhinoplasty	10
5. Other plastics of face	20
6. Excision of facial scars	9
7. Epithelial inlay	4
8. Plastic of tongue	2
9. Hare-lip	2
10. Cleft plate (adult)	2
11. Cleft palate traumatic (adult)	1
12. Partial resection of jaw	2
13. Double maxillary—antrum drainage	1
14. Closing maxillary antrum sinus	1
15. Necrosis of jaw	1
16. Malignant upper jaw	1
17. Epithelioma of lower lip	1
18. Epithelioma of neck	1
19. Cyst of upper jaw	2
20. Oesophagoscopy	1
21. Goitre	2
22. Exophthalmic Goitre	4
23. Dermoid of orbit	1
24. Hemi-gastrectomy and gastro-enterostomy	1
25. Appendicectomy and epithelial inlay	1
26. Cystoscopy, exploration of kidney and appendicectomy	1

Of the last 44 adult cases I have taken careful notes, using a form that I had printed in 1909 for some statistical work on narcotics and general anaesthesia (15).

Date: _____ No.: _____
 Surgeon: _____
 Patient's name: _____ Age: _____
 Disease: _____
 Operation: _____
 Hypodermic injection: _____

Anæsthetic begun:
Operation begun:
Anæsthetic stopped: Amount:
Operation stopped:
Remarks:

The statistics that I have obtained are not perfect, as with the small number of cases observed, it has been impossible to differentiate between the military and civil cases. The difference is rather marked, as will be seen by comparing the following two records.

CASE I.—Date: January 30, 1920. No. 13.
Surgeon: Colonel Newland.
Patient's name: Pte. C.S. Age: 25 years.
Disease:
Operation: Cartilage graft in nose.
Hypodermic injection of morphine (0.012 grm.); atropine (0.0012 grm.).
Anæsthetic begun 3.6 p.m.; under, 3.14 p.m. Shipway double airway: 3.14 p.m.; ready, 3.20 p.m..
Operation begun: 3.30 p.m..
Anæsthetic stopped: 4.30 p.m.. Amount: ether, 75 c.cm.; chloroform, 10 c.cm..
Operation stopped: 4.37 p.m..
Remarks: No nasal air-way; 2nd tube of air-way had to be kept open all the time to prevent cyanosis.
Pulse-rate: 132-108.

CASE II.—Date: April 22, 1920. No.: 31.
Surgeon: Dr. Newland.
Patient's name: Miss P.M. Age: 14 years.
Disease: Exophthalmic goitre.
Operation: $\frac{1}{4}$ thyroidectomy.
Hypodermic injection: Morphine, 0.01 grm.; atropine, 0.0012 grm..
Anæsthetic begun: 8.30 a.m.; under, 8.34 a.m. Shipway, with nasal catheter: 8.35 a.m.. Ethyl chloride, 0.8 c.cm.; chloroform and ether, 1 c.cm.; ether, 14 c.cm..
Operation begun: 8.37 a.m..
Anæsthetic stopped: 9.45 a.m.. Amount: ether, 75 c.cm.; chloroform, 1 c.cm..
Operation stopped: 9.54 a.m..
Remarks: Pulse-rate 180 before operation and 144 after. Chiefly auto-anæsthesia. Much vomiting afterwards.

The military patients have caused me more difficulty in inducing and maintaining anæsthesia than any others. The patients are usually young, full-blooded men, sometimes alcoholic; they smoke 30 to 40 cigarettes a day and have been anæsthetized many times previously. Some have had the lower jaw shot away and the muscles damaged so much that the tongue has to be held forward throughout the entire operation. Others have the jaws fixed together by a locked double Gunning cap splint.

CASE III.—Date: May 17, 1920. No.: 40.
Surgeon: Colonel Newland.
Patient's name: Pte. E.W. Age: 29 years.
Disease:
Operation: Bone graft of jaw.
Hypodermic injections: Morphine, 0.015 grm.; atropine, 0.0012 grm..
Anæsthetic begun: 3.43 p.m.; under, 3.47 p.m.. Shipway nasal catheter, oxygen: 3.47 p.m.; ready 3.53 p.m.. Ethyl chloride, 12 c.cm.; chloroform, 2.5 c.cm.; chloroform-ether (1:31), 14 c.cm..
Operation begun: 3.55 p.m..
Anæsthetic stopped: 5.43 p.m.. Amount: ether, 78 c.cm.; chloroform, 10 c.cm..
Operation stopped: 5.53 p.m..
Remarks: This patient nearly always takes the anæsthetic badly. He was given potassium bromide, 1.2 grm., last night. This was his fifteen operation. He smokes 15 cigarettes a day. Very little control over tongue, which had to be held forward throughout operation. Pulse-rate, 144-72. His condition was very good after the operation.

CASE IV.—Date: April 30, 1920. No.: 34.
Surgeon: Colonel Newland.
Patient's name: J. J. McI. Age: 22 years.
Disease:
Operation: Jaw graft from ilium.
Hypodermic injections: Morphine, 0.015 grm.; atropine, 0.0012 grm..
Anæsthetic begun: 3.13 p.m.; under, 3.18 p.m.. Shipway nasal tube and blower: 3.18 p.m.; ready, 3.25 p.m.. Ethyl chloride, 10 c.cm.; chloroform, 1 c.cm.; chloroform-ether (31:1), 35 c.cm..
Operation begun: 3.30 p.m..
Anæsthetic stopped: 4.10 p.m.. Amount: ether, 89 c.cm.; chloroform, 7 c.cm..
Operation stopped: 4.25 p.m..
Remarks: The patient was wearing a locked double Gunning cap splint. He smokes 40 cigarettes a day. This is his fourth operation. Pulse-rate, 84-96. His tongue was held forward by a silk suture throughout operation. A second catheter was passed into other nostril for better aeration.

Technique Employed.

The preparation is that of any surgical operation except that a hypodermic injection of morphine 0.016 grm. (gr. $\frac{1}{4}$) and atropine 0.0013 grm. (gr. $\frac{1}{50}$) is given 30 to 45 minutes before the patient is brought to the operating theatre.

Besides the usual routine examination of a patient, special notice is taken of the size of the mouth, mobility of jaw and tongue and the capacity of the nasal air way. All these may be altered as the result of wounds or of fixation apparatus.

CASE V.—Date: April 23, 1920. No.: 33.
Surgeon: Colonel Newland.
Patient's name: Pte. N. Age: 25 years.
Disease:
Operation: Plastic repair of the nose and replacement of pedicle.
Hypodermic injections: Morphine, 0.015 grm.; atropine, 0.0012 grm..
Anæsthetic begun at 4.10 p.m.; under at 4.14 p.m.. Shipway, double air way and oxygen: 4.14 p.m.; ready, 3.15 p.m.. Ethyl chloride, 10 c.cm.; chloroform, 1 c.cm.; chloroform-ether (1:31), 11 c.cm..
Operation begun: 4.20 p.m..
Anæsthetic stopped: 5.12 p.m.. Amount: ether, 28 c.cm.; chloroform, 9 c.cm..
Operation stopped: 5.12 p.m..
Remarks: The deformity of the mouth made the air way too long and it fell out and had to be replaced. Pulse-rate 120-108. The patient was very afraid of anæsthesia. He always vomits before the anæsthetic is applied; consequently the skin was not prepared, owing to the smell of ether. He smokes 10 cigarettes a day. This was his 18th anæsthesia.

Anæsthesia is not induced with the Shipway apparatus, as it is pleasanter and more rapid by the open ethyl chloride-ether sequence preceded by five or ten drops of essence of orange.

For military patients a mixture of chloroform (1 part), ether (31 parts) is more satisfactory than ether alone. A mixture containing more chloroform would be more rapid, but has not been used. When deep anæsthesia is obtained, post-nasal plugs are inserted, if required, and in some cases a silk suture is passed through the tongue. It is best to insert the suture from side to side with a curved domestic needle, as advised by Waugh (16).

The Shipway apparatus is now applied by nasal tube, double air way or laryngotomy tube. The nasal tube consisting of a rubber catheter (size 21-33 French), is lubricated with sterile vaseline and passed

through the larger nostril into the naso-pharynx for a distance of about 11.4 cm..

Whenever possible, I use a No. 33 French catheter, the end of which has been removed and the side opening retained. It is surprising how large a tube can be inserted; the larger the tube, the less is the chance of its slipping out and the easier the anaesthesia.

The catheter is connected to the delivery tube and blowing is commenced.

It may be necessary to use chloroform or mixture at first, as the patient sometimes recovers partially from the anaesthesia. After a few minutes a change may usually be made to ether alone and a depth of anaesthesia regulated by the rate of blowing rather than by adding chloroform.

At Sidecup, Clayton (17) used a Hewitt's air-way fitted with a hollow stopper, which was connected to the apparatus by a rubber tube. This was altered by Wien Smith, so that more air might be given, by dividing the stopper into two halves, but only connecting one to the Shipway apparatus. It had, however, this disadvantage, that during the operation no alteration could be made in the air supply. The extra opening was under the towels and so really only caused a re-breathing chamber.

Major Russell (A.A.D.C.) kindly made to my specifications a still further modification. This consists of fitting two tubes to the hollow stopper. One is attached to the efferent tube of the vacuum flask by a rubber tube. The other carries a large rubber tube 36 cm. in length, which comes under the towels to the edge of the operating table. Here, by means of a clip, the amount of air can be increased or decreased immediately without disturbing the patient or field of operation in any way.

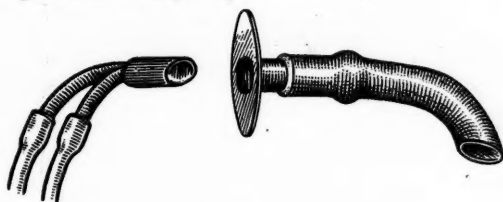


FIGURE II.
Author's Modified Apparatus.

The two metal tubes were originally made from the side piece of a binaural stethoscope. The air tube proved too small and a larger one was put in for me by Messrs. Wood & Son, of Adelaide, who now make this model. To insert the double air-way the mouth is opened, the tongue drawn forward by a towel clip and the Hewitt's air-way alone placed in position. It is usually gripped by the teeth or lips at once. Then the hollow stopper carrying its two rubber tubes is introduced, the extra air pipe being left open. Pumping is then commenced as before. If there is any likelihood of hæmorrhage near the mouth, it is better to push the air-way through a sheet of rubber dam, which can be tucked under the lips to prevent fluids from entering the mouth.

With edentulous old people, in whom the temporal and masseter muscles lack tone, the air-way is liable to come out of place. This is shown in the following case.

CASE VI.—Date: March 31, 1920. No.: 22.
Surgeon: Dr. Newland
Patient's name: Mr. M.. Age: 72 years.
Disease: Carcinoma of neck.
Operation: Excision of growth, with glands.
Hypodermic injections: Morphine, 0.01 grm.; atropine, 0.0004 mgr..
Anæsthetic begun: 5.14 p.m.; under, 5.17 p.m.. Shipway, with double air-way: 5.18 p.m.. Ethyl chloride, 10 c.cm.; ether, 14 c.cm..
Operation begun: 5.29 p.m..
Anæsthetic stopped: 6.10 p.m.. Amount: ether, 64 c.cm.; chloroform, 18 c.cm..
Operation stopped: 6.15 p.m..
Remarks: The air-way came out twice, as he was edentulous and the masseters and temporals lacked tone. It was badly held with consequent increase in the amount of chloroform. A nasal tube would have been better. Pulse-rate 96 at the start and 96 at the end of the administration. There was marked arrhythmia of heart.

For use with a laryngotomy tube the following method is employed.

The patient, being fully anaesthetized, the nasal catheter is introduced and anaesthesia continued while the larynx is opened. A special laryngotomy tube (rather like Hahn's tracheotomy tube), having a raised external cuff, is inserted and over this is placed a rubber tube 6.5 cm. long connected with a glass funnel (11.4 cm. in diameter). The funnel is covered by two layers of thin cotton stockingette, through a hole in which the delivery tube of the apparatus is passed. Chloroform may have to be used at first, but a gradual change may usually be made to ether.

There has been neither immediate nor remote respiratory troubles from the pure warmed ether.

CASE VII.—Date: March 19, 1920. No.: 16.
Surgeon: Dr. Newland.
Patient's name: H.W.. Age: 20 years.
Disease: Complete cleft palate.
Operation: (1) Laryngotomy; (2) repair of palate and plastic operation on lip.
Hypodermic injection: Morphine, 0.015 grm.; atropine, 0.0006 grm..
Anæsthetic begun: 8.21 a.m.; under, 8.26 a.m.. Shipway, with funnel: 8.41 a.m.. Ethyl chloride, 8 c.cm.; chloroform, 2 c.cm.; ether, 17 c.cm..
Operation begun: 8.31 a.m..
Larynx opened: 8.36 a.m..
Anæsthetic stopped: 9.46 a.m.. Amount: ether, 57 c.cm.; chloroform, 18 c.cm..
Operation stopped: 9.50 a.m..
Remarks: Mitral stenosis. Pulse-rate 84-96.
8.26-8.36 Shipway and nasal catheter.

Details of Technique.

(1) The blower for ordinary work, a large hand bellows, is efficient, but is tiring in a long operation. Instead of this I sometimes use a dental blower or pressure chamber which gives a continuous stream of air. A double acting inflator takes seven minutes to create a pressure of 22.75 kilograms, but this is sufficient for about 1½ hours' blowing.

Still easier, though more expensive, is to use a cylinder of oxygen as the blower; this probably gives the best result of any. The disadvantage of either of these two methods is that with a small stream of air and oxygen the present three-way tap will not permit vaporization from both bottles simultaneously. A suitable electric blower cannot be obtained in Australia at present.

Many patients keep themselves under by automatic inhalation as has been pointed out by Clayton (17).

(2) Warming chamber.—The thermos flask, which should not be less than one pint in capacity, is filled with water at from 49° to 60° C. For use with the funnel and laryngotomy tube 71° C. is better. The water loses from 5° to 10° per hour.

Advantages of the Shipway Apparatus.

The special advantages for operations on the head and neck are the elimination of the anaesthetist from the field of operation. Anyone who has operated upon or anaesthetized such patients, will welcome any method that does away with the old "give and take operations," by which the difficulties of a sepsis are enormously increased, the operation prolonged by frequent interruptions, the patient tends to be either dangerously under the anaesthetic or else too lightly anaesthetized. With the Shipway apparatus the anaesthetist can maintain an even depth of anaesthesia or vary it at will. He can usually be 90 cm. from the patient's head.

The sterile towels, having once been placed, need not be disturbed.

By this method ether can be given instead of chloroform.

The general advantages are numerous. Before reading the literature on warm ether, I had noticed that the pulse at the end of even a long operation was very good and often less frequent than before the induction of anaesthesia.

CASE VIII.—Date: May 12, 1920. No.: 37.

Surgeon: Colonel Newland.

Patient's name: Pte. E.S.. Age: —

Disease:

Operation: (1) Appendicectomy; (2) epithelial inlay.

Hypodermic injections: Morphine, 0.015 gm.; atropine, 0.0012 gm.

Anaesthetic begun: 3.40 p.m.; under, 3.47 p.m.. Shipway, nasal catheter, oxygen: 3.47 p.m.; ready, 3.54 p.m.. Ethyl chloride, 8 c.cm.; chloroform, 1 c.cm.; chloroform-ether (1:31), 28 c.cm..

Operation begun: 3.58 p.m..

Anaesthetic stopped: 4.54 p.m.. Amount: ether, 52 c.cm.; chloroform, 11 c.cm..

Operation stopped: 4.58 p.m..

Remarks: The lower jaw had been shot away. Immediate tracheotomy had been performed at a casualty clearing station. Since then several plastic operations and a jaw graft had been carried out. He had hardly any control over his tongue, which had to be held forward throughout the operation. The lower jaw underhung, causing too free an air-way with need for more chloroform. Pulse-rate 112-84. This was his seventh operation. He smokes 20 cigarettes a day.

Shock seemed to be less than usual. The literature and careful observations confirm this view.

Recently I have used the apparatus for any long operation where much shock was to be expected.

These cases are few, but the results so far are gratifying and I am convinced better than with ether given by the open method.

CASE IX.—Date: April 16, 1920. No.: 28.

Surgeon: Dr. Newland.

Patient's name: Mr. H.. Age: 56 years.

Disease: Carcinoma of stomach.

Operation: (1) Hemi-gastrectomy; (2) gastro-enterostomy.

Hypodermic injections: Morphine, 0.015 gm.; atropine, 0.0006 gm..

Anaesthetic begun: 3.15 p.m.; under, 3.18 p.m. till change.

Shipway nasal catheter: 3.32 p.m.. Ethyl chloride, 8 c.cm.; ether, 311 c.cm.; chloroform-ether, 31 c.cm..

Operation begun: 3.24 p.m..

Anaesthetic stopped: 5.6 p.m.. Amount: ether, 75 c.cm.; chloroform, 2 c.cm..

Operation stopped: 5.28 p.m..

Remarks: Pulse-rate before the operation 96, after, 84. The patient vomited stinking stomach contents just before the operation commenced. His throat had to be dried out several times.

CASE X.—Date: May 4, 1920. No.: 36.

Surgeon: Dr. Newland.

Patient's name: Miss W.. Age: 23 years.

Disease:

Operation: Cystoscopy, kidney region explored, laparotomy, appendicectomy.

Hypodermic injections: Morphine, 0.01 gm.; atropine, 0.0006 gm..

Anaesthetic begun: 3.28 p.m.; under, 3.34 p.m.. Shipway nasal catheter: 3.34 p.m.. Ethyl chloride, 7 c.cm.; chloroform-ether, 1 c.cm.; ether, 20 c.cm..

Operation begun: 3.37 p.m..

Anaesthetic stopped: 5.7 p.m.. Amount: chloroform, 3 c.cm.; ether, 85 c.cm..

Operation stopped: 5.15 p.m..

Remarks: Pulse-rate 96-84. During the operation the pulse-rate was once as high as 130 during manipulations, as the anaesthesia was too light. There was much mucus. She vomited bile at 5.17, which had been milked out of gall-bladder during operation. Later she suffered much pain in the loin, hematuria and vomiting (probably renal).

Respiratory complications have not occurred so far as I can ascertain.

Vomiting is infrequent and small in amount, as a rule, unless blood has been swallowed or there is some special reason for it. Severe vomiting took place in four cases, two were cases of exophthalmic goitre, one was a case in which the kidney had been much handled and in one the patient had been very intoxicated the night before the operation. With the small number of cases observed it is impossible to say whether vomiting is less than with ether administered by the open method.

CASE XI.—Date: May 14, 1920. No.: 38.

Surgeon: Colonel Newland.

Patient's name: Pte. G.M.. Age: 29 years.

Disease:

Operation: Plastic operation on lip.

Hypodermic injections: Morphine, 0.015 gm.; atropine 0.0012 gm..

Anaesthetic begun: 3.0 p.m.; under, 3.5 p.m.. Shipway, with nasal tube: 3.5 p.m.. Ethyl chloride, 12 c.cm.; chloroform, 1 c.cm.; chloroform-ether (1:31), 28 c.cm..

Operation begun: 3.16 p.m..

Anaesthetic stopped: 3.50 p.m.. Amount: ether, 50 c.cm.; chloroform, 14 c.cm..

Operation stopped: 3.51 p.m..

Remarks: Pulse-rate 108-72. The patient was very drunk last night. He smokes only 6 cigarettes a day. This was his 9th operation. He could not be kept deeply under. His tongue had to be held forward the greater part of the time. There was much vomiting afterwards.

CASE XII.—Date: April 1, 1920. No.: 23.

Surgeon: Dr. Newland.

Patient's name: Miss McC.. Age: 20 years.

Disease: Exophthalmic goitre.

Operation: Removal of three quarters of the thyroid.

Hypodermic injections: Morphine, 0.015 gm.; atropine, 0.0006 gm..

Anaesthetic begun: 8.37 a.m.; under, 8.39 a.m.. Shipway, with nasal catheter: 8.46 a.m.. Ethyl chloride, 10 c.cm.; ether, 20 c.cm..

Operation begun: 8.45 a.m..

Anæsthetic stopped: 10.7 a.m.. Amount: ether, 121 c.cm.; chloroform, 2 c.cm..

Operation stopped: 10.10 a.m..

Remarks: Pulse-rate 156-130. There was much vomiting after operation. ? mild acidosis; ? thyrotoxic.

Recovery from the anæsthetic is rapid; the patients often begin to open their eyes, move and mutter before leaving the table.

Statistics.

The number of cases observed is 86 (2 more since this paper was written).

Careful notes were made in 44.

The age of the patients varied between 5 months to 72 years.

The duration of anæsthesia from beginning with the Shipway apparatus to the end of the operation was from 19 minutes to 140 minutes, with an average of 60.9 minutes.

The total time of induction of anæsthesia was from 5 to 32 minutes, with an average of 13.8 minutes.

The time from changing to the Shipway apparatus till the patient was ready for operation was from 1 to 18 minutes, with an average of 6.025 minutes.

The amount of anæsthetic for an average operation of 60.9 minutes was: ether 61.1 mls. and chloroform 11.8 mls.

The average amount of anæsthetic used per minute was: ether 1.003 mls. and chloroform 0.193 mls..

Summary:

With the Shipway apparatus:—

- (1) The anæsthetist can be eliminated from the field of operation in face operations.
- (2) Warm ether may be given without re-breathing.
- (3) Shock is lessened.
- (4) Respiratory complications are lessened.
- (5) Recovery from the anæsthetic is rapid.

References.

- (1) *Brit. Med. Journ.*, 1888, pp. 1412.
- (2) *Trans. Soc. Anæsth.*, 1898, Vol. I.
- (3) *British Med. Journ.*, March 15, 1873
- (4) *Ibid.*, July 15, 1876.
- (5) *Ibid.*, August 7, 1875
- (6) *Lancet*, February 10, 1877.
- (7) *Medical Record*, October 14, 1905; *New York Med. Journ.*, June 1, 1912.
- (8) *Johns Hopkins Hospital Bulletin*, April, 1909.
- (9) *British Journal of Surgery*, 1913, p. 90.
- (10) *Journ. Amer. Med. Assoc.*, March 23, 1912.
- (11) *Ibid.*, November 23, 1912.
- (12) *Lancet*, January 8, 1916.
- (13) *British Med. Journ.*, August 19, 1916.
- (14) *Ibid.*, 1916, Vol. 2, p. 309.
- (15) *Lancet*, April 15, 1911.
- (16) "Index of Treatment," Hutchison and Sherren, p. 187.
- (17) *Lancet*, 1919, Vol. 1, p. 793.

Reviews.

GYNÆCOLOGY.

The third edition of Dr. Blair Bell's well-known work¹ has followed the second edition so quickly that this fact in itself indicates the value set upon the book by the general voice of the profession.

¹ The Principles of Gynecology: A Manual for Students and Practitioners, by W. Blair Bell, B.S., M.D. Fourth Edition (?): 1919. London: Baillière, Tindall & Cox; Royal Soc., pp. 660, with 390 illustrations and six coloured plates. Price, 38s. net.

The pathological arrangement by which all gynecological symptoms are included in their pathological categories, which Dr. Bell was the first to adopt and which has been extensively followed by other authors, is retained. Many alterations have been made in the text and many new illustrations have been added or substituted for old ones.

The most important and interesting facts connected with the subject of the endocrine system of glands and their influence on bodily metabolism, upon which Dr. Bell is a recognized authority, have been treated in a practical way.

Part I., including an account of the evolution of the female genital organs, their development and anatomy, is illustrated by some of the most instructive diagrams we have seen, making this difficult subject comparatively easy.

The interesting observation is made that the Australian *Ornithorynchus* "forms a link between the ancestors of the mammals (? if birds is not here intended) and the higher mammals." The author has dealt so fully with the above subjects that he might have included Metchnikoff's reference to the hymen as one of the "disharmonies" in nature—a relic of the time when sexual relations took place at an early age, when it was therefore desirable for the introitus to be in harmony with the small penis of the small boy, also that the hymen hinders free drainage and now serves no useful purpose.

The pelvic fascia is clearly described in connexion with the supporting structures of the uterus. The following sentence may, however, give the student a false impression: "Within the pelvis, then, we have the genital organs separated from the cup-shaped cavity . . . and needing support." The student might not realize from this that the pelvis is chock a block with structures and organs which, although displaceable, are incompressible and do lend each other mutual support under the influence of intra-abdominal pressure. This was emphasized years ago by Gaillard Thomas when, in his text-book of gynecology, he referred to "the juxtaposition of other organs" as one of the chief factors in maintaining the uterus in position.

The various theories which from time to time have been held to account for menstruation, have been discounted by the author in favour of "general metabolic factors."

In the part concerned with the physiology of conception, it is stated: "Conception has occurred in women many years after the menopause." This does not coincide with the experience of the majority of obstetricians. Some women, however, do not menstruate after their first and only child.

The chapters on pregnancy, uterine contractions, case taking, examination of the patient are full of interest. Head's areas of cutaneous hyperæsthesia, associated with lesions of internal organs, are well illustrated and described.

The chapter on abnormalities and malformations is one of the best in the book. The author's statement that so-called imperforate hymen is really atresia of the lower end of the vagina can be verified. In cases of retained menses the hymen can be seen spread out over the bulging hematomakolpos.

Examination of the patient in the left lateral position is favoured; outside England such an inferior method has been long since discarded.

The sections on injuries and malpositions are short, but informing. In connexion with rupture of the uterus during parturition the author makes the point that the practitioner should plug the laceration with a roll, not a strip, of gauze and employ morphine and other measures to combat shock until surgical assistance can be obtained.

In perforation of the uterus in cases of septic abortion, removal of the uterus must be carried out, if possible *per vaginam*, in order to limit the infection. It might be as well to remind young practitioners that, in non-septic cases, perforation of the fundus by a clean sound will probably do no harm and need no treatment, if the accident be recognized and no iodine or other irritating matter be introduced.

The term "displacement" is properly restricted to the removal of the uterus in its entirety from its normal situation. Versions and flexions have different significations, but are often misnamed "displacements."

"Congenital retroversion is not very uncommon in young girls and is best left alone and the patient not informed." The author does not mention skeletal defects in such cases and that then the malposition is probably compensatory, but he emphasizes that they arise in the period of growth.

"There are strong objections to pessaries, except as a temporary method of treatment."

"Alexander's operation is only to be recommended in very exceptional cases." "Modifications of Gilliam's operation can be advantageously employed."

Prolapse of the uterus may be brought about in three ways: (1) "True hernia of the genital organs," hernia of the entire displaceable portion of the pelvic contents is more correct. (2) "The genital organs may be dragged down by prolapse of the vagina." (3) "Increased weight of the uterus may be the primary cause." This is opposed to common experience. Uteri enlarged by tumours, pregnancy, etc., are frequently seen, without signs of prolapse. The fact is, unless there is impairment of the integrity of the pelvic floor (using that term to signify all structures from the skin outside to the peritoneum inside) there will be no prolapse whatever the size of the uterus.

In the treatment of prolapse the author says: "A suspension operation should never be done until the smallest cystocele and rectocele have been cured." This is a wise warning, which is often ignored in Australia, with consequent discredit to surgery.

In the treatment of dysmenorrhœa another needed warning is given: "Opium and alcohol should never be allowed." "The ovaries should not be removed." We have consistently condemned the removal of the ovaries for painful conditions; any surgeon who removes these organs, unless the seat of neoplasms, sets himself against the consensus of opinion throughout the world and exposes himself to an action at law.

Under the heading, sterility, the statement is made that "the most fertile period is about ten days after the termination of menstruation." Most authorities say "just after."

In incomplete abortion the gloved finger is recommended, not the curette.

In ectopic gestation, with collapse, immediate operation, preferably in the patient's own home, is held to offer the best prospect.

While there is much valuable information regarding gonorrhœa, we cannot agree with the author that "it is rarely necessary to treat the vagina" or that "when the uterus is affected it is best to dilate the cervix and swab the uterine cavity with pure carbolic, followed by alcohol." The genital tract should be promptly treated from the internal os to the vulva and external genitals by means of silver nitrate solution. On the other hand, to dilate the internal os and swab out the uterine cavity is to favour extension to the tubes and pelvic peritoneum. Rest is the best means of preventing this catastrophe. In later treatment curetting, and also removal of both ovaries, unless the latter are the seat of abscesses, are rightly condemned.

Other infections are excellently dealt with in a series of short chapters.

Myomata are treated fully. We can notice only two points in regard to diagnosis: "Remember that amenorrhœa does not occur when there are fibro-myomata in the uterus, unless the patient be pregnant." In operating: "At least one ovary and a portion of the endometrium should be left, if feasible"; i.e., if the cervix be healthy.

The classification of ovarian cysts is not the best for teaching purposes and in some respects differs materially from what is generally accepted. On page 402 the statement is made that broad ligament cysts, including those arising in the parovarium, are always papillomatous. This is not so. On the other hand, no mention is made that serous cyst adenomata contain papillomatous growths, which they always do. On page 412 papillomatous cysts are described as something entirely separate and distinct; all this is confusing to students.

There is a short, but valuable, chapter on diseases of the hormonopoeitic system; it was hoped and expected that a great authority on the subject would deal more fully with this subject. Another short chapter on morbid conditions of the nervous system affords useful information.

The last section is on operative procedures, beginning with preparation and after-treatment. We strongly disagree with the author that morphine should not be given in the after-treatment. On the contrary, during the first twenty-four hours it should be given in small doses sufficiently frequently to allay suffering and restlessness and act as a "sweet, oblivious antidote" to all the alarms and discomforts of the

occasion. It is one of the most valuable aids in combating shock and undoubtedly tends to check oozing.

Rectal injections of saline solution and movements of the patient are relied upon to prevent thrombosis. With this we agree and would wish to add the additional recommendation that the patient be urged to make deep respiratory movements frequently.

A large dose of atropine hypodermically is advised twice daily at the beginning of pulmonary complications.

The descriptions of the technique of abdominal operations are short, but clear. We cannot follow the reasoning of the author in recommending ovarian grafting; if the ovaries are sufficiently healthy to allow of their being retained, why not leave them in their natural location? Experience seems to show that, when grafted elsewhere, they speedily atrophy and deteriorate. Vaginal operations are very well done. We disagree, however, that "the interposition operation should be practised for the cure of prolapse in women after the menopause." It is unnecessary for the cure of this condition and, according to published reports, has sometimes led to disastrous results. We also dissent from the advice that after an operation for complete rupture of the perineum "a tube to facilitate the escape of gas is fixed into the rectum with a silkworm gut suture for a week." This prevents the newly united sphincter being at rest and is unnecessary. We think it best to open the bowels on the fourth rather than the sixth day.

The author ends with the warning that "it is only by assisting at and watching operations that a thorough knowledge can be gained." How many operators in Australia assist and watch for any length of time before undertaking to play the rôle of operator?

There is a valuable appendix on "post-operative exercises" and another, equally valuable, on "the classification of the causes of certain gynaecological symptoms and manifestations."

The book is a credit to the author and to British surgery.

THE ALFRED HOSPITAL.

The following appointments to the honorary medical staff of the Alfred Hospital, Prahran, were announced on June 25, 1920:—

Honorary Physicians in the Department of Children's Diseases: Dr. W. S. Laurie and Dr. F. K. Norris.

Acting Honorary Physician in the Dermatological Department: Dr. R. R. Wettenhall.

Honorary Clinical Assistants in the Department of Diseases of the Ear, Nose and Throat: Dr. H. B. Thomson and Dr. F. P. Edwardes.

The second list of places recognized for the purpose of public vaccination in Victoria, has been published in the *Government Gazette*, No. 132, of June 23, 1920 (see *The Medical Journal of Australia*, June 26, 1920, page 598). Three places are indicated, namely, Dr. G. Atkinson's surgery at Learmonth, Dr. C. C. Marshall's surgery at Balmoral and Dr. J. S. Reed's surgery at Korumburra.

Dr Thomas Storie Dixon has been created a Knight of Grace of the Order of St. John of Jerusalem, in recognition of his long services as Commissioner of the Order for New South Wales.

Sir Neville Howse, V.C., K.C.B., K.C.M.G., was a successful candidate in the municipal elections at Orange, New South Wales, last week.

Dr. J. H. L. Cumpston, the Director of Quarantine, is anxious to obtain a copy of the *British Medical Journal* of May 26, 1917, and of the *Lancet* of December 29, 1917, to complete his files for binding. He would greatly appreciate it if any member who has these copies to spare, would send them to him at 51 Spring Street, Melbourne.

The Medical Journal of Australia.

SATURDAY, JULY 3, 1920.

A National Medical Service.

The report of the special committee of the New Zealand Branch of the British Medical Association on the establishment of a national medical service, of which a summary was published in our issue of last week, will attract the attention of medical practitioners throughout the Commonwealth. The report comprises three distinct problems, each of which is of great importance to the medical profession and to the whole community. In the first place the committee puts forward arguments in support of the establishment of some form of national service. In the second place the committee makes a concrete proposal for the institution of a limited State medical service for out-lying districts and for the poorer section of the population of the cities and towns. In the last place the committee recommends a modification of the hospital system, in order that paying patients may be admitted to general hospitals.

Each of these three subjects has been dealt with in this *Journal* on many occasions in the past. Although no new aspect of the problems has been presented, it is evident from the action of the New Zealand Branch that a reform of some kind is needed. The nature of the proposals will naturally vary according to the views held concerning the failure of the medical profession to safeguard the health of the community. The committee of the New Zealand Branch holds that the State has an increasing responsibility to undertake the prevention of disease and the promotion of health of the people. It is presumed that the term State means the government of the country or section of the country, the chosen representatives of the people and the duly appointed permanent officials. It may be conceded that someone is or should be responsible for the application of every measure which has been proved to be of value in reducing disease, in prolonging life and in increasing efficiency. Under the conditions obtaining at present, the governments within the British Em-

pire have accepted the responsibility for the application of measures which tend to prevent the spread of infective disease, which tend to protect the general population against the irresponsible acts of violence of the insane, which tend to improve the learning capacity of children at school and which tend to eliminate avoidable dangers associated with industrial undertakings. In addition, the governments assume the complete guardianship of their servants in the several public services, including the navy and the army. It will be noted that save in the case of its paid servants, the government limits its activities generally to the prevention of disease. There is one exception to this rule. In Great Britain the Government for many years controlled a national medical service for the medical care of paupers. The Poor Law administration has long since been condemned by everyone. The medical services were extremely unsatisfactory and often practically non-existent. In Australia the hospitals for the poor or for those who are unable to pay for the treatment adjudged to be necessary, receive financial support from consolidated revenue. The mere fact that the responsibility for the state of health of the people is an increasing one should not be regarded as an argument in favour of placing added burdens on to the shoulders of officials. Certain forms of medical activity cannot be undertaken individually by the medical practitioner. The problem of the prevention of disease can only be solved by the co-ordinated work of many agencies. For this purpose the proper authority to bear the responsibility is the constituted health authority under the control of the government. Success depends on the degree of compulsion that can be exercised and it is admitted that legal compulsion alone suffices for the purpose of preventive medicine. The history of the infective processes reveals that hitherto there has been but small success attending the application of preventive measures by the governmental health departments. We still have enteric fever, diphtheria, tuberculosis, variola and a host of other preventable diseases. It may therefore be said that the claim of the committee that the increasing responsibility of the State in regard to the prevention of disease is an argument in favour of the establishment of a national medical service, is an erroneous statement. It should be modified to read that this

increasing responsibility is an argument for the reform of the existing health departments, for a considerable extension of their activities and for a better recognition of their responsibilities.

The committee argues further that the development of specialization in medical practice has made the work of the general practitioner difficult and burdensome. The necessity for specialization has arisen from the extension of knowledge in the different branches of medicine. A few years ago a medical practitioner could command a moderately complete knowledge of medicine. To-day the component sciences are too wide and length of study necessary for a complete mastery of each branch too great for one man to become an authority in every branch. The general practitioner is supposed to have a working acquaintance with each specialty. He must have sufficient knowledge to realize when he needs the assistance of his specializing colleague. His burden is to some extent lessened by this limitation of his sphere. If "his measure of success is his deprivation of leisure for recreation and study" as the committee states is the case, it is not to be expected that he would use any spare time he might obtain as a member of a departmental service for study. The efficient medical practitioner to-day has to find time for study. His patients soon discover if he is behind the times in his knowledge and the discovery of a want of modern knowledge is rapidly followed by a curtailment of his professional activity. On the other hand, the salaried official can afford to ignore the opinion of his patients. His employment by the government would not be dependent on professional efficiency. Moreover, it is difficult to gather the advantage that would accrue to the community if the allegedly harassed general practitioner were transformed into a departmental servant. His difficulties and burdens, supposed to be due to the increase of specialization, would scarcely be lessened, provided that he carried out his obligations to his patients conscientiously. In short, we claim that the committee have not adduced an argument in favour of a national service, save that of preventive medicine.

In the last place, the committee proposes to combine the expedient of the intermediate hospital with that of the general hospital. The principles involved in such a proposal are quite different from those gov-

erning the institution of a national medical service. It may be admitted that our hospitals need reforming. The medical profession, like the public health authority, has a grave responsibility to the community in respect to the manner in which the treatment of disease and accident is conducted. The public should receive some definite guarantee that the work carried out in the public hospitals is up to standard. Increased efficiency in hospital practice is one necessary reform. Another is the establishment of some institution for the application of team work. Hospitals exist for persons who cannot afford to pay for the treatment considered necessary. It is frequently essential for an examination to be carried out by half a dozen specialists before a diagnosis can be made. The patient needs to be rich to be able to pay for all these examinations prior to the institution of treatment. The only scheme for the general application of the principle of team work lies in the establishment of some form of intermediate or paying institution where specialists in every branch co-operate with one another to this end. There is surely no need to use the general hospital for such a purpose. Apart from the fact that the general hospital is in need of improvement, this proposal would merely have the effect of interposing the subsidizing government between the private practitioner and his patient. Experience does not lend encouragement to a proposal of this kind.

THE PREVENTION OF DIPHTHERIA.

The Commission of Public Health of Victoria, duly constituted under the new *Health Act* (1919), has drawn up a set of regulations for the prevention of diphtheria. These regulations depend for their success on two factors, both of which have in the past proved difficult to control. The Commission has legal powers of control through the provisions of the Act, but whether these powers can or will be exercised only experience can determine. The factors are the notification of infections by the practising doctor and the prompt intervention by the councils of the municipalities. According to the regulations, the plan of prevention is as follows. The practitioner called in to a case of diphtheria is required to notify the fact of the infection to the municipal council. The council must send its medical officer of health or some

other authorized person at once to visit the house wherein the patient lies. He is required to see that the patient is effectively isolated. He has to instruct the occupier how to prevent the spread of the disease from the patient to other persons. He has to take swabs from the throat of every person who has been in contact with the patient. Finally he must make inquiries with a view to the discovery of the source of infection. The swabs are sent to a competent bacteriologist. In regard to the patient, the council is responsible for the continued isolation until the bacilli disappear from the throat. The test prescribed is the failure to grow diphtheria bacilli from the faucial mucus on two occasions with an interval of not less than 48 hours. If the bacteriological examination of the material from the persons in contact with the patient discloses the condition of bacillus carrier, isolation has to be carried out, but if the carrier state persists for over one month, the medical officer of health may release the person, provided that he promises to carry out the precautions dictated. All children under and of school age who have been in contact with a person suffering from diphtheria, have to be isolated until the medical officer of health is satisfied that they are not a danger to the public health. Apparently the medical officer of health has wide discretionary powers in connexion with children. The occupier of a house in which a patient is suffering from diphtheria, is required to notify the head teacher of the school at which any inmate of the house attends. Similarly the head teacher is required to notify the municipal council as soon as it is known that a pupil is absent from school on account of diphtheria. In addition to the orders concerning isolation, it is specifically provided that no person suffering from diphtheria and no carrier of diphtheria bacilli may enter or remain in a public place, or a public conveyance or handle food intended for consumption by others. Moreover, provision is made for dealing with infections traced to dairies or milkshops. When the patient is discharged from isolation the house or a part thereof must be disinfected. Medical officers of health can obtain from the municipal council a supply of antitoxin free of charge for use when the patient is in necessitous circumstances.

From this summarized account, it is evident that the success or failure of these measures must depend primarily on the prompt notification of every case of diphtheria by the treating practitioner. In the last annual report of the Director-General of Public Health of New South Wales, Dr. Purdy, the medical officer of health of the metropolitan district of Sydney, points out that many cases of diphtheria are not notified at all. He found four instances in which death from diphtheria had occurred, but no notification had been received by the local health authority. The duty of notification of diphtheria is not required for statistical purposes alone. On this action the whole chances of combating the disease must depend. If the health authority learns of a neglect of this duty, a prosecution of the offending practitioner should be instituted and a maximum penalty demanded. The duty is a serious one, which may not be delayed.

The Commission of Public Health has to face this question of ascertaining whether every case of diphtheria is notified and of using its powers to compel obedience. Medical practitioners will not require persuasion to take this duty seriously. Whether the municipal councils will be as amenable to reason, remains to be seen. The local health authority has to pay for the work carried out in connexion with these preventive measures. In some cases the councils recognize the importance of prevention of disease and are prepared to expend money on any reasonable campaign. Other councils resist all the orders issued by the central health authority and evade their responsibilities. While it is difficult to compel municipal councils to perform the tasks allotted to them promptly and willingly, this task is by no means impossible of attainment. Much depends on the activity of the medical officer of health and on his persuasive powers. The Health Commission should keep in close touch with the medical officers of health and rely on them to furnish it with information concerning any difficulties arising from parsimony or inertia on the part of the local authorities. The success of the scheme is assured if the cases are notified, if the medical officers of health can induce their councils to perform their duties properly and if the medical officers of health grasp the situation and its possibilities. It has been demonstrated in isolated

districts in the Commonwealth and on repeated occasions that outbreaks of diphtheria can be completely controlled. An adequate control by a department of public health throughout a whole State has not yet been effected. The fault in the past has been in the application of the administrative machinery. The returns for the past twenty years in all parts of the Commonwealth reveal the disturbing fact that, notwithstanding the ease with which diphtheria infection can be traced and controlled, the incidence of this disease has increased to an alarming extent. In pre-antitoxin days, the case mortality was high. The practitioner has in antitoxin a remedy which can reduce the death-rate to the vanishing point, if it is applied at a very early stage. To-day the case mortality from diphtheria is still over 4.2%. The Health Commission has now an opportunity of demonstrating to the rest of Australia that diphtheria can be prevented to a very large extent. If the control proves successful, the medical practitioners of the State will not be slow in completing the revolution by applying antitoxin uniformly on the first day of disease. The result will be the saving of many lives and the prevention of a vast amount of suffering.

TRANSFUSION OF BLOOD IN PERNICIOUS ANÆMIA.

As early as the year 1892 the application of the transfusion of blood to the treatment of patients suffering from pernicious anemia began to evoke considerable interest. In most of the earlier experiments sodium phosphate was used as an anticoagulant. A direct arterio-venous transfusion was performed in other cases. The results recorded were variable and unsatisfactory. With the advent of the war a new interest was awakened in the whole subject of blood transfusion. The simplification of the technique and the introduction of readily applicable tests for incompatibility of donor and recipient caused the field of experiment and clinical observation to be widened enormously. It is almost invariably the case when any new method or principle of treatment is introduced in medicine that enthusiastic votaries of the innovation tend to apply it widely, often without due regard for all the restrictions and limitations which should rightly enter into the consideration of the discriminating clinician. It may be stated that up to the present time sufficient experiments have not been recorded to enable a precise statement to be made as to the exact field of usefulness of blood transfusion in the treatment of disease. Pernicious anemia is a disease so capricious in its course and uncertain in its progress that great numbers of observations should be carefully recorded before any sound conclusion might be drawn as to the efficiency of any individual method of treatment.

In an analysis of 23 cases of pernicious anemia treated by blood transfusion, Dr. James M. Graham¹ has endeavoured to deduce from the actual facts observed conclusions which may be helpful in estimating the value of transfusion in this disease.

In the consideration of pernicious anemia it must be recognized at the outset that the problem differs entirely from the simple replacement of the blood loss occurring in severe hemorrhages or in war wounds, in which cases the transfusion of whole or citrated blood has come as a result of war experience to be regarded as a specific in many instances. In pernicious or hemolytic anemia the question of blood destruction and the changes in the bone marrow are the predominant factors to be taken into account. Divergent views are held regarding the explanation of the pathological changes characteristic of pernicious anemia, particularly as to whether the bone marrow is primarily or secondarily affected. According to some authorities, hemolysis of the red corpuscles is unduly active and the increase of red marrow is compensatory. Others regard the marrow as being primarily affected, the increased destruction of corpuscles being explained by the production of immature and fragile cells, abnormally susceptible to the hemolytic activities of the organs concerned with the removal of effete corpuscles.

Numerous observations have proved that a large proportion of corpuscles transfused in cases of pernicious anemia retain their vitality for a considerable period. They remain vital for several days at least. This fact tends to support the hypothesis that the excessive hemolysis which occurs in the disease, is due to an impaired character of the corpuscles produced by the marrow, rather than to exalted hemolytic properties of the serum or of the organs concerned in blood destruction. It would therefore appear obvious that the supply of transfused corpuscles to a patient suffering from pernicious anemia fulfils merely a symptomatic indication for treatment and does not attack the *causa causans* of the disease. Hence, from theoretical considerations, it might be expected that an immediate improvement only would be likely to follow the transfusion of blood. Clinical evidence tends to bear out this conclusion. In the majority of cases an immediate improvement is noted, the transfused corpuscles serving to resuscitate the patient and to prolong life when all other means have failed.

If it be decided to adopt this method of treatment, the operation should not be delayed until the patient is *in extremis*. Beneficial effects of transfusion may be observed in various ways. The increased volume of blood in circulation produces an immediate alleviation of symptoms which are directly attributable to circulatory deficiency, such as shortness of breath and palpitation. Occasionally signs of reaction on the part of the bone marrow appear soon after transfusion and a definite remission may be induced, although the bone marrow had previously appeared to have been in a condition of exhaustion and the administration of arsenic had proved useless.

It has been suggested that in such cases the bone marrow, sharing in the temporary improvement in the general condition of the patient, is in a better position to react than it was before. Little evidence

¹ *Edinburgh Medical Journal*, May, 1920.

has been adduced to suggest that the transfusion by itself is sufficient to cause a continued stimulation of the marrow and a progressive reduction of the anæmia without the coincident administration of arsenic.

In drawing conclusions from the cases recorded by numerous authors, it may be stated that the transfusion of blood is of considerable value in cases of pernicious anæmia which are stationary or progressive and have failed to respond favourably to the usual medical measures of treatment. The method employed for the blood transfusion in such cases is important, as the results following the use of whole or unmodified blood have been found to be considerably better than when blood treated with anticoagulants has been employed. The benefit resulting from transfusion may be only slight and transient; in other cases a definite remission of the disease is initiated. It is claimed that a decidedly beneficial effect is observed in from 40% to 50% of cases, provided that the procedure has not been delayed until the patient is in a hopeless condition.

The advisability of transfusion should therefore be considered in patients whose condition is stationary or progressive, or who are critically ill, in spite of continued administration of arsenic. In such instances transfusion may prove a useful adjuvant to the arsenical treatment and may assist the patient to tide over a critical period. Up to the present time the results recorded have not been sufficiently constant or permanent to place the procedure upon a sure footing in the treatment of pernicious anæmia. In no case should this measure be adopted without due and careful consideration of all the factors involved. No definitely curative effect can be claimed, apart from a transient stimulation of the bone marrow.

UNSUSPECTED NERVOUS INVOLVEMENT IN SYPHILIS.

During recent years great interest has developed in the study of syphilis as it affects the central nervous system in the early stages of the disease. With increasing investigation of early cases of syphilis by neurologists, it has been found that evidence of involvement of the central nervous system was not uncommon in the earlier stages of the disease. Further advances in our knowledge followed the routine cytological examination of the cerebro-spinal fluid and the records of Wassermann tests performed, both with blood and cerebro-spinal fluid, in early cases. By these laboratory methods of diagnosis it was found that the cases showing clinical evidence of early involvement of the nervous system formed but a small proportion of those actually affected in this way.

The existence of these early and undeclared affections of the central nervous system in recent syphilitic infections is of the greatest importance. It has been maintained by various writers that gummata and the so-called parasymphilitic affections of the central nervous system are in reality a recrudescence in a remnant of spirochaetes which had remained dormant *in situ* since the generalization of infection in the acute stage. Clearly this subject has a very important bearing upon the treatment of syphilis. Recent investigations in this subject have been carried

out by Honorary Surgeon Lieutenant-Commander Fieldes and his colleagues, under the auspices of the Medical Research Committee.¹

In addition to the usual laboratory tests, examination of the cerebro-spinal fluid was instituted as a routine in the investigation of every case of syphilis or suspected syphilis admitted to Haslar during a period of ten months. Results of such examinations are recorded from a series of 1,314 different unselected cases. The routine examination consists of the Wassermann test applied to the blood, the cytological examination and Wassermann test applied to the cerebro-spinal fluid, together with a thorough clinical examination of the eyes, ears and nervous system in general. It has been found that a pleocytosis exists in the cerebro-spinal fluid in a small number of cases of primary syphilis, even before the Wassermann reaction in the serum has become positive, and that the number gradually increases until the secondary period, when 21% are affected. During the later stages (tertiary) 27% are abnormal. As the number of cells in the cerebro-spinal fluid increases, so do positive Wassermann reactions become more frequent. Examination of the eye grounds has shown that definite pathological changes of the nature of syphilitic choroidal endarteritis appear at an earlier stage of the disease than has been previously recognized.

These statistics are of value, as especial care has been taken to exclude doubtful results and because the patients were in no way selected. Of the whole group of 1,314 patients examined, the great majority were in the early stages of the disease and showed no obvious signs of nervous disease by ordinary clinical examination. Of these, 18% were shown to have undoubted evidence of an abnormal condition of the central nervous system. The onset of this abnormality may be very early, as it has been demonstrated in four cases before the Wassermann reaction had become positive in the blood serum. It is remarkable that in these cases there is the almost complete absence of symptoms, even when the condition of syphilitic meningitis is sufficiently acute to produce a visible opalescence in the cerebro-spinal fluid.

Antisyphilitic treatment has an unmistakably ameliorating action on these conditions. These observations serve to demonstrate the value of lumbar puncture in the routine examination of all cases of syphilis and emphasize the necessity for early and energetic treatment as soon as the diagnosis is established.

Many members of the medical profession in Melbourne desired to express their sympathy with Dr. W. Cusaden at the result of his recent action at law. The matter was taken up by eighteen prominent members and resulted in Dr. Cusaden being entertained at dinner at the Grand Hotel, Spring Street, on June 23, 1920.

It has been announced that Dr. Eleanor Bourne has resigned her position of Medical Inspector of School Children in Queensland. It will be remembered that Dr. Bourne obtained leave of absence in 1916 to take on war duties. She served in the Women's Army Auxiliary Corps and was demobilized early in 1920. She has recently secured the post of Assistant Medical Officer in the Municipality of Carlisle in the north of England.

¹ "Unsuspected Involvement of the Central Nervous System in Syphilis," Medical Research Committee, Special Report Series, No. 45, 1920.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(1) Myiasis Dermatosae.

W. H. Mook reports a case of *myiasis dermatosa* in a man, aged 24 years (*Archives of Dermatol. and Syphilol.*, May, 1920). The lesions had been present for six weeks and first appeared as two small red nodules, slightly pruritic, but not painful. Several weeks later in each lesion there had developed a necrotic centre, from which there exuded a thin muco-purulent discharge. The lesions were situated close together near the last lumbar vertebra. On examination, each resembled a small furuncle, with a minute central necrotic opening, about 1.5 mm. in diameter, which, on closer inspection, was seen to be constantly plugged with a moving organism. The lesions were red, inflamed and about the size of a walnut. The only discomfort the patient suffered was pruritus, slight pain on pressure and great mental discomfort from the knowledge of their presence. An incision was made under local anaesthesia and a large larva was removed from each lesion. A leucocyte count made before and fifteen days after the removal of the larvæ showed the total white cells to be unaltered, but the differential count revealed a reduction of eosinophile cells after the removal of the larvæ from 5.5% to 2.5%. The larvæ, after removal, were submitted to C. H. T. Townsend, of the United States Department of Agriculture, Bureau of Entomology, United States Natural Museum. The report furnished stated that this fly in the larva state, is a natural parasite of mammals and in the tropics infestation of man is a common occurrence. In the natural course of events larvæ infesting man are extracted and destroyed, but a few years ago, one of his men having become infested in Panama, allowed a larva to remain in his arm until mature, with the result that he succeeded in rearing a fly from it. That specimen agreed in every respect with others reared from cattle, so the idea at one time prevalent that there is a species peculiar to man, cannot be entertained. This larva is the third and last stage of *dermatobia hominis* and always occurs in cysts just beneath the skin, communication with the outer air being maintained through a small perforation. The mode of infestation occurs through the medium of a mosquito. The patient stated that the worm is colloquially called the beef worm and appears in the western part of the peninsula of Yucatan, Terrotorio de Quantana Roo, Mexico, where he had recently been on a visit. It occurs also in British Honduras and further south through all the mahogany country. It seems to appear in or on people engaged in mahogany camps and correlated works and in the cattle used in the work. People who live in the larger towns and who do not visit the works in the bush are seldom, if

ever, attacked. The usual method for removal used locally is to place a tobacco leaf or a piece of adhesive plaster over the whole at night, thus killing the larva and then, by pressure, taking it out in the morning.

(2) Acrodermatitis Chronica Atrophicans.

M. Scholtz records the clinical history and the characters of the skin rash in an extremely well-marked case of *acrodermatitis chronica atrophicans* and discusses the pathology of the condition (*Archives Dermat. and Syphilol.*, May, 1920). The patient was a driver, aged 44, who had formerly been a heavy drinker. Twelve years previously the wheels of his wagon passed over his hands and legs. Two years later he noticed red patches on the feet and hands. These patches extended slowly. A few weeks before admission his legs began to swell and he was confined to bed. There were large areas of reddened skin, symmetrically distributed in both upper and lower extremities and extending uniformly from the bases of the toes to the waist line and from the proximal phalanges of the fingers to and above the elbow joints. The whole surface presented a mild, bran-like exfoliation. There was no sharp edge of the reddened area; the skin was mottled and the colour varied from dark purple to white and ultimately faded into normal skin colour. The author states that the complex blending of colours and the various stages of the pathological processes almost defied an exact description. The legs were swollen and on a background of dusky redness there were areas of bright red inflammation extending from the ankles to the knees. Oedema was present and these areas were tender on pressure. There were purplish areas with a net-work of dilated veins, atrophic patches and a peculiar resistant oedema, all of which he interpreted as being due to deep organic changes occurring as part of the primary pathological process. The lymphangitis cleared up in four weeks, when the original dermatitis became more readily recognizable. The skin could not be pinched or lifted into a fold. In the atrophic areas the skin was thin and dry. In certain places a few indolent ulcers of varying size were seen. On the tibial surfaces there was a mixed condition of tense sclerotic infiltration with atrophic changes. Typical "wrinkled cigarette paper" atrophy was present on the extensor surfaces of the knee, surrounded by a wide zone of dark purple and dark brown pigmentation. Two symmetrical, strikingly pale sclerotic bands stretched almost the whole length of the thigh. These femoral bands had no counterpart on the upper extremities, although Wise describes ulnar and tibial bands. The author considers the diagnosis as certain, although there were some unusual characters. He discusses at some length his reasons for accepting the terminology *acrodermatitis chronica atrophicans* rather than the nomenclature suggested by Finger

and Oppenheim of idiopathic atrophy of the skin. He also gives his reasons for refusing to regard this condition as a scleroderma.

(3) Röntgen Ray Diagnosis of Gastro-Intestinal Lesions.

Dudley Roberts (*Journ. Amer. Med. Assoc.*, November 15, 1919) finds that although radiography has placed the diagnosis of gastro-intestinal lesions on a sounder footing, still certain limitations of the method must be recognized. The most important limitation is that of expense. Unless richly endowed, a charitable institution cannot carry out the method in its most effective form and the author considers that unless the examination can be carried out properly, it is far better to follow the ordinary clinical signs for laparotomy. He considers that a negative finding must not be looked upon as conclusive in the exclusion of gastro-intestinal disease. Even in the recognition of gross disease many mistakes occur, due mainly to the imperfections of technique or excusable fallibility in interpretation. In regard to oesophageal conditions, the author recommends the more frequent combination of radiography and oesophagoscopy. Gross lesions of the cardiac end of the stomach are very likely to be missed and careful examination of this region should be made. Ulcers of the posterior wall may easily escape detection and early annular pyloric growths may cause no variation in the normal gastric contour. Organic lesions of the right iliac fossa are difficult of diagnosis. Barium enemata are of greater value in the diagnosis of colonic lesions than the ordinary barium meal. The author concludes that the accuracy of the various conclusions depends entirely on the pathological knowledge, the experience and the scientific honesty of the interpreter.

(4) Cancer of the Stomach.

R. D. Carman states that the pre-operative information gained as to the nature and extent of gastric new growth by means of Röntgen rays examination is most important (*Journ. Amer. Med. Assoc.*, November 15, 1919). The size, shape and position of the stomach and its mobility as well as the size, location and extent of the lesion can be determined with great accuracy. It is possible to distinguish extrinsic from intrinsic lesions and to give a valuable opinion as to operability. Carman insists on the close co-operation of clinician and radiologist, if the best results are to be obtained. Some gastric tumours are inoperable on account of their position, e.g., those situated at the cardiac end of the stomach. The extent of the growth and the presence of adhesions to neighbouring organs may also determine the operability. The author regards medical treatment of any gastric tumour as sheer homicide. He holds that the surgeon should always be consulted. If insufficient evidence is obtained at one examination, repeated examinations should be made.

BIOLOGICAL CHEMISTRY.

(5) The Titration of Organic Acids in Urine.

In connexion with their studies on acidosis, D. D. Van Slyke and W. W. Palmer have devised a method for the determination of organic acids in the urine (*Journ. Biol. Chemistry*, April, 1920). The organic acids, both free and as salts, in urine are estimated by titrating between the hydrogen ion concentrations represented by pH 8 and pH 2.7 respectively, after removal of phosphates and carbonates by means of calcium hydroxide. It appears that the titration represents between 95% and 100% of the organic acids present. It also includes weak bases, whose dissociation constants fall within a range in the neighbourhood of 10^{-11} , but of this class only creatinine and at times creatine appear to be present in significant amounts in human urine. The average 24 hours' excretion of organic acids in thirteen healthy young men was, per kilogram of body weight, 8.2 c.c.m. of 0.1 normal acid uncorrected for creatinine, or approximately 6 c.c.m. corrected for creatinine. There appears to be little difference between day and night periods in rate of organic acid excretion. In a case of diabetes, which progressed to coma, the rise in acetone body excretion was accurately paralleled by the rise in the titrated organic acids. The parallelism was so close as to indicate the probabilities: (i.) that organic acids other than the acetone bodies are not excreted in significant amounts in diabetic acidosis, (ii.) that the easily performed organic acid titration may be used for approximate estimation of the acetone bodies in diabetic urine. In carrying out the titration, 100 c.c.m., roughly measured, of urine are thoroughly mixed with two grammes of finely powdered calcium hydroxide, allowed to stand about 15 minutes, with occasional stirring, then passed through a dry folded filter. This treatment removes carbonates and phosphates. To 25 c.c.m. of the filtrate in a 125 to 150 c.c.m. test tube of clear glass one adds 0.5 c.c.m. of 1% phenolphthalein solution and 0 N hydrochloric acid from a burette until the pink colour just disappears (pH = approximately 8). As an indicator solution 5 c.c.m. of 0.02% tropeolin OO solution are then added, the tube being shaken thoroughly while it is being added. Finally, 0.2 N hydrochloric acid is added from the burette until the red colour equals that of a standard solution containing 0.6 c.c.m. of 0.2 N hydrochloric acid, 5 c.c.m. of tropeolin OO solution and water to a total volume of 60 c.c.m.. When the end point is approached, sufficient water is added to the titrated solution to make its volume equal to that of the 60 c.c.m. standard solution used in a similar tube as a colour control. From the volume of 0.2 N hydrochloric acid used to titrate from the end point of phenolphthalein to that of tropeolin OO, the amount, usually 0.7 c.c.m., is subtracted, which is utilized in a similar titration of a control determination in which water is substituted for the urine. The volume of 0.2 N hydrochloric acid, thus

corrected, represents the approximate organic acid content of the urine sample, together with the creatine, creatinine and an amount of amino acids ordinarily negligible. In order to calculate the results in terms of 0.1 N organic acid per litre, the figure obtained is multiplied by 80. In order to correct for creatinine the amount of organic acid per litre calculated from the above titration is diminished by

mg. creatinine per litre of urine

11.32

(6) Chemical Changes in the Blood in Disease.

Victor C. Myers has investigated in considerable detail the non-protein nitrogen of the blood in various diseases (*Journ. Laborat. and Clin. Medicine*, April, 1920). Although the non-protein constitutes only about 1% of the total nitrogen of the blood, nevertheless, greater interest is attached at the present time to variations in the bodies which form the non-protein than to the protein nitrogen. This is largely due to the fact that the variations of these non-protein constituents are of significance in connexion with some of the processes of anabolism and katabolism. The partition of the non-protein nitrogen in the urine is quite different to that in the blood. The human kidney removes the creatinine from the blood with remarkable ease and certainty. The kidney normally concentrates the creatinine 100 times, the urea 80 times and the uric acid only 20 times. As the permeability of the kidney is lowered in conditions of renal insufficiency, this becomes evident in the blood, first by a retention of uric acid, later by that of urea and, lastly, by that of creatinine. Urea is the simplest component of the non-protein nitrogen of the blood to estimate and useful information is obtained by its estimation. Marked urea retention may occur, not only in the terminal stages of chronic interstitial nephritis, but also in such conditions as bichloride poisoning and double polycystic kidney and in some cases of acute nephritis. Relatively high figures are frequently noted in malignant disease, pneumonia, intestinal obstruction, lead poisoning and sometimes in syphilis and cardiac conditions, although in cardiac affections this may be due to renal complications. A slight retention is frequently noted in gastric and duodenal ulcer. Advanced cases of diabetes frequently show definitely high figures. The blood urea is only slightly, if at all, elevated in eclampsia. Blood urea is of less prognostic value than creatinine in advanced cases of nephritis, but a better guide as to the value of the treatment. In cases of prostatic obstruction the urea is an excellent preoperative prognostic sign, much better than creatinine, for when there is creatinine retention there is already sufficient urea retention to render operative interference very dangerous. The renal factor can be disregarded when the urea nitrogen is 20 mgr. or under. The patient may be operated on with caution when it lies between 20 and 30 mgr., while with figures over 30 mgr. the

outlook is unfavourable. In conditions involving nitrogen retention there are obviously two lines of attack: (i.) to increase the output of the kidneys and (ii.) to decrease the nitrogen intake, while still maintaining the caloric and other needs of the body. Until quite recently, the first method was the one that has been employed clinically, particularly by the use of some diuretic drug, but it has been recognized that in acute cases such drugs are contra-indicated. They are of very doubtful value in chronic cases. A reduction in nitrogen intake will reduce the blood retention and this can be effected by the use of suitable dietaries.

(7) Effects of Feeding with Calcium Salts.

W. Denis and A. S. Minot have commenced a systematic study of the calcium content of the blood of persons suffering from a number of maladies for the relief of which calcium administration has been advocated. They have also examined the effect on the blood calcium produced by the administration of calcium salts to these patients (*Journ. Biolog. Chemistry*, March, 1920). As a necessary preliminary to the interpretation of results obtained on pathological material, a number of experiments has been carried out along the same lines on normal individuals and on animals. In one experiment five men and one woman, all normal subjects, took by mouth daily three two-gramme portions of calcium lactate for a period of six to ten days. There was no effect on blood calcium in these cases, the amount of calcium per 100 c.c.m. of plasma being in all cases practically the same at the end of the experiment as at the beginning. In order to investigate the effects of larger doses, animals were used, cats and rabbits, as it was found impossible to give larger doses in men. Where the initial concentration of calcium in the plasma was low, it was sometimes possible greatly to increase the amount in the plasma by feeding salts of this element, but in most cases it was impossible to increase the concentration.

(8) Food Consumption in Training Camps.

John R. Murlin has determined the average food consumption in 427 messes scattered over 67 different camps (*Journ. Biolog. Chemistry*, March, 1920). The weighed average amounts to 3,625 calories. To this must be added the average food consumption from the canteen or post exchange, which averaged 365 calories per capita daily. This makes a total food consumption of the average soldier in training of 4,000 calories, in round numbers. Averages by months indicate a well marked, though slight, seasonal variation. Of the 4,000 calories consumed by the average soldier in heavy training, 13% is protein, 31% fat and 56% carbo-hydrate. The average recruit on this diet gained nearly three kilograms in a period of five months' training; the gain was equally distributed over men of different initial weight.

British Medical Association News.

SCIENTIFIC.

A meeting of the South Australian Branch was held on May 27, 1920, at the House of the Branch, Hindmarsh Square, Adelaide, Dr. H. S. Newland, C.B.E., D.S.O., the President, in the chair.

Dr. C. T. C. de Crespiigny presented a young cattle musterer who was suffering from a condition resembling *myotonia congenita*, except that, contrary to the description given by Thomson, the initiation of the muscular action was easy and the continuance difficult. The patient became "muscle bound" after a short continuation of one muscular action. The contracting muscle remained in a state of spasm lasting for several seconds. This condition was induced after a series of voluntary contractions and after contractions elicited by electrical stimulation. Dr. de Crespiigny pointed out that a similar condition had been described in connexion with veratrine poisoning and in sodium phosphate poisoning. The affection seemed to be due to an imperfect development of the fibres of the affected muscles. In his patient the *erector spinae* was apparently not involved.

Dr. Bronte Smeaton exhibited two skiagrams to illustrate the difficulty in differentiating between a calcareous lymphatic gland and a ureteral calculus. His patient was attacked with colic. His urine contained pus, blood and *Bacillus coli communis*. He also demonstrated a large renal calculus.

Dr. B. Poulton showed patients with a dermoid cyst with a twisted pedicle and an epithelioma of the tongue, involving the floor of the mouth.

Dr. Gilbert Brown read a paper on "Experiences with the Shipway Anaesthetic apparatus" (see page 4).

A communication from Dr. Charleton Yeatman, of Port Pirie, was read, in which the writer expressed the opinion that the Shipway apparatus had proved itself of value in obstetric practice.

Dr. H. A. Powell, C.M.G., stated that this apparatus was in frequent use in France. He preferred nitrous oxide and oxygen anaesthesia, but he admitted that the Shipway apparatus had been of value. A foot bellows had been employed and this had added to the efficiency of the apparatus.

Dr. C. T. Turner agreed with Dr. Gilbert Brown, that post-operative shock was greatly reduced by the use of the apparatus and vomiting minimized. He thought that it was of great value to be able to use an apparatus almost ideal in design and at the same time economical.

Dr. C. T. C. de Crespiigny confirmed all that had been said of the apparatus from his personal experience of its value in the hands of Shipway.

Dr. B. Poulton said that, although the new forms of apparatus were good, the old were, in his opinion, of equal value, provided that they were used with care. He did not desire any better anaesthetic than ether.

Dr. C. Duguid asked Dr. Gilbert Brown whether he could give him any information concerning the methods employed of recording the pulse-rate and blood pressure as advocated in many discussions on anaesthesia in America.

Dr. F. S. Hone called attention to the high proportion of chloroform in the mixture referred to by Dr. Gilbert Brown. He asked whether a mixture containing one part of chloroform to five of ether would not give what was practically chloroform anaesthesia.

Dr. F. Willcox suggested that the absence of vomiting might be due to the large dose of atropine injected prior to the operation.

Dr. J. A. Bonnin asked whether Dr. Gilbert Brown held the opinion that smoking was detrimental to easy anaesthesia.

In his reply Dr. Gilbert Brown said that he held that the bad effect of tobacco on the smooth course of anaesthesia was in direct proportion to the amount the individual smoked. He agreed that the atropine might reduce vomiting to some extent. He had come to this conclusion as a result of observations on 300 patients in 1909. The apparently large relative amount of chloroform recorded depended on the fact that it represented the average ratio of many cases. In many instances pure chloroform had

been used. In his most recent case, the proportion was 1:75 or less. He admitted that he could not say what values were obtained in America from pulse and blood pressure records. He had noted that importance was attached to these records, but had had little opportunity to make observations of this kind. He thought that a blood pressure reading was valuable as a warning sign. His experience with the older apparatus did not confirm Dr. Poulton's views. He held that of the older methods the open administration of ether was the best. Clover's inhaler came second, Ormsby's third and mixtures of chloroform and ether came last on account of the after-effects.

MEDICO-POLITICAL.

At a meeting of the New South Wales Branch held on June 28, 1920, it was resolved, on the recommendation of the Council, to support the proposal of the Federal Committee to modify the constitution of that Committee, to enable it to pay the travelling and personal expenses of members attending its meetings out of its funds.

The undermentioned have been elected members of the Victorian Branch:—

Dougan Bird, Esq., M.B., Ch.B., Melb., 1911; L.R.C.P., Lond., M.R.C.S., Eng., 1912, 41 Spring Street, Melbourne.

Edward Thomas Brennan, Esq., M.B., Ch.B., Melb., 1909, 38 Ormond Road, Elwood.

Louis P. Crivelli, Esq., M.B., Ch.B., Melb., 1913, 41 Ferrars Place, Albert Park.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A meeting of the Melbourne Pædiatric Society was held at the Children's Hospital, Melbourne, on June 9, 1920, the President, Dr. A. E. Rowden White, in the chair.

Dr. A. E. R. White presented an interesting case of Friedreich's ataxia in a girl aged 13 years. The girl was admitted to the Children's Hospital on May 18, 1920, when the mother stated that until six months ago the child had enjoyed fairly good health, but that she herself had always regarded her as a "weak" child. During the last six months the muscular weakness had increased and the child had commenced to stagger. She had gradually developed a stooping posture in walking, with inclination of the head to one side and had experienced increasing difficulty in walking steadily. The patient's mother had had twelve pregnancies, of which two miscarried; two babies died at the ages of 6 and 14 months respectively; there were thus eight living children, in none of whom were there any indications of the condition present in the child before the meeting.

On examination, marked ataxia and rhombegism were evident, associated with a gross intention tremor. The girl seemed mentally bright, but her expression was observed to be mask-like. The pupils were equal, regular and reacted normally. There was no ocular paralysis, but nystagmus was apparent when the child looked to the right or left. Dr. Percy Webster had reported that there was no optic atrophy or neuritis and that the fundi and vessels appeared quite healthy. A systematic examination of the nervous system disclosed that the tendon reflexes of the knee and ankle were absent and that the patient's sense of position, as tested by the great toe and ankle joint, was defective.

Physical examination in other respects was of a negative character and neither blood nor cerebro-spinal fluid reacted to the Wassermann test.

Dr. Rupert Downes, C.M.G., asked the opinion of the meeting for the most appropriate treatment in the case of an infant, aged 8 months, who, twenty-two days before the date of the meeting had swallowed a staple, 2.5 cm. in length. The foreign body had been watched closely by means of screen examinations. Although it had moved about in the

stomach, it had not passed through the pylorus. Dr. Downes exhibited a radiogram, taken the day before the meeting, in which the staple was seen *in situ*.

Mr. W. Kent Hughes thought that an attempt should be made to extract the staple through a gastroscopic tube.

Dr. H. Douglas Stephens considered the suggestion of Mr. Kent Hughes the best method of procedure; if it failed, there seemed to be no other course than extraction by a gastrotomy operation.

Dr. W. Dismore Upjohn, O.B.E., asked consideration for a boy aged six, in whom there were many of the features of Little's disease and, at the same time, some points of difference from that condition. The child had been born prematurely (8 months) without the aid of instruments. Although he was now 6 years old, he had neither sat up nor walked. In disposition he was apathetic and his speech had not advanced beyond separate words; he was unable to frame a sentence. At the age of two years he became the subject of convulsions, which extended, intermittently, over a period of eight months. On examination, all the limbs were seen to be poorly developed and the adductors were in a state of spasm, imparting the "scissor" appearance, so characteristic of Little's disease, to the lower limbs. The tendon reflexes were all present; a peculiarity was noted in the plantar reflexes, in that while the great toe was extended, the response in the other toes was one of spreading, or "fanning," rather than flexion.

Dr. Upjohn remarked that in this boy there was a greater degree of wasting of the muscles than was generally observed in Little's disease, a feature which seemed to suggest some affection of the anterior cornual cells in addition to that of the higher motor centres.

In reply to questions, Dr. Upjohn stated that there was one other child in the family, aged 4½, who was normal in all respects. The patient had at present no sphincter trouble and had gained control at the age of 4½.

Dr. Roland Wettenhall presented a child, aged two years, with an angiomatous condition of the right hand, to which he had applied radium treatment. This child had been shown at a previous meeting of the Society by Dr. Downes, who had removed a large angioma from the axilla on October 20, 1919. Dr. Wettenhall had instituted radium treatment to the thumb and middle finger, as being the larger digits, on January 8, 1920. By the end of January the child had received 1,100 milligram-minutes to the thumb and 325 milligram-minutes to the middle finger. Early in February the child contracted pertussis, with accompanying cervical adenitis, and when seen on February 12 the hand was pallid. Eight days later, the hand and digits, with the exceptions of the thumb and middle fingers, were intensely swollen and bright red in colour; the thumb and middle finger were pale, not swollen, nor tense. Dr. Wettenhall had maintained radium treatment, in small dosage, for a period of two and a half months. He demonstrated that the middle finger was now definitely smaller than the other fingers.

Dr. Wettenhall next drew attention to a skin eruption in an infant aged 6 months. He had first seen the child on May 12, 1920, when he exhibited pronounced snuffles and a papulo-macular, coppery, infiltrated eruption over the abdomen and thighs; the remains of the rash were still to be observed on the buttocks, scrotum and penis. Although the eruption and general condition of the child were indicative of a clearly defined clinical condition of congenital syphilis, on May 14 the Wassermann reaction was negative and seven days later it was still negative.

Dr. Wettenhall's third case was an extensive skin eruption, which he had diagnosed as *pityriasis rosea*, and which he exhibited because of the necessity to avoid the confusion of this condition with congenital syphilis. The lesions were widely distributed over the trunk and limbs. They consisted of a waxy centre, which subsequently became scaly. The periphery of the lesions maintained a pink erythema and did not share in the scaliness which supervened in the central portion. Many of the centres showed yellowish discolouration. Dr. Wettenhall pointed out that on the back the lesions were oval and tended to follow the lines of the ribs. The condition was not very pruritic and with it was associated a general glandular enlargement. Lesions occurred in the mouth. There was frequently slight fever. *Pityriasis rosea* was not very rare and was often mistaken for congenital

syphilis. A small proportion of patients, stated by Craig to be about 5%, gave a positive Wassermann reaction. In this particular case, the pathologist had not yet reported the result of the Wassermann test.

Mr. W. Kent Hughes showed: (1) An example of recurrence of deformity after operation for talipes. Seven years ago he had operated and corrected the *talipes calcaneovarus*, but the boy, for various reasons, one of which was the absence of Mr. Kent Hughes on active service, had not been under supervision. Mr. Kent Hughes's object in showing the patient was to emphasize the futility of operation, unless the feet were kept under observation. He had not seen so bad a recurrence in any other patient. After demonstrating the steps of his original operation, Mr. Kent Hughes said that he intended to perform a further tarsotomy by means of which he hoped to secure a much better position of the foot.

(2) A baby with a very unusual deformity, in which the right leg was flexed at right angles on the thigh and lay across the opposite limb. There was also much flexion of the right hip-joint. The deformity seemed fixed, although the child was only four weeks old when first brought to the Children's Hospital. Mr. Kent Hughes had adopted treatment with plaster fixation, similar to that adopted for congenital hip dislocation. Some improvement had already been effected.

(3) A boy, aged 11, who twelve months previously had come under notice with very advanced flat foot. At that time there was much eversion and dropping of the arch. The boy had been treated in plaster for a year and much improvement had resulted. Mr. Kent Hughes commented upon the early age at which such a bad degree of flat foot had occurred.

(4) A girl with ethmoiditis and disease of the left maxillary antrum. Mr. Kent Hughes impressed upon the members that antral suppuration occurred frequently in children. He referred to the cases recently published by Professor Mills in *The Medical Journal of Australia*.

Dr. S. O. Cowen exhibited photo-micrographic prints illustrative of sub-acute proliferative cholangitis. This condition will be reported in detail in a subsequent issue of the *Journal*.

Dr. Reginald Webster showed: (1) A specimen removed from the ilium of the child shown by Dr. Stephens at the last meeting of the Society (*vide The Medical Journal of Australia*, June 12, 1920). The wedge-shaped piece consisted chiefly of cartilage; it was so deficient in calcification that it could be cut readily with a knife; in fact, only at one point in the excised piece was any calcification evident. The specimen was very resilient; this quality explained the absence of spontaneous fractures, of which there appeared to be considerable risk when the condition was examined.

The microscopic section was on view and Dr. Webster stated that he interpreted the slide as a chondroma, in which were scattered degenerated areas bounded by granulation tissue.

(2) The kidneys of a child, aged 6, with chronic nephritis, uniformly granular kidneys, with extremely narrow cortex and thickened and adherent capsule. The Wassermann test was negative.

(3) Pancarditis of rheumatic origin, in a girl, aged 12 years.

Congress Notes.

The date of the Australasian Medical Congress is August 23-28, 1920.

The official address of the Congress is: The Honorary Secretary, 11th Session, Australasian Medical Congress, B.M.A. Building, Adelaide Street, Brisbane.

The following are the Local Secretaries in the several States:—

New South Wales: Dr. F. Brown Craig, Macquarie Street, Sydney.

Victoria: Dr. A. Leo Kenny, Collins Street, Melbourne.

South Australia: Dr. F. S. Hone, North Terrace, Adelaide.

Western Australia: Dr. W. Trethowan, 267 St. George's Terrace, Perth.

Tasmania: Dr. E. Brettingham Moore, Macquarie Street, Hobart.

New Zealand: Dr. C. E. A. Coldicutt, 82 Simonds Street, Auckland.

Queensland: The Honorary General Secretary and the Coadjutor Secretary, c/o. Queensland Branch, British Medical Association, Adelaide Street, Brisbane.

The following is a list of the Honorary Secretaries of the Sections:—

(i.) **Medicine:** Dr. Andrew Stewart, Wickham Terrace, Brisbane.

(ii.) **Surgery:** Dr. Donald A. Cameron, Wickham Terrace, Brisbane.

(iii.) **Obstetrics and Gynaecology:** Dr. Lillian V. Cooper, George Street, Brisbane.

(iv.) **Pathology and Bacteriology:** (In place of Dr. A. W. Dean) D. J. V. Duhig, Wickham Terrace, Brisbane, and Dr. A. Brelin, Institute of Tropical Medicine, Townsville.

(v.) **Public Health:** Dr. J. S. C. Elkington, Federal Quarantine Department, Brisbane.

(vi.) **Ophthalmology:** Dr. J. Lockhart Gibson, Wickham Terrace, Brisbane.

(vii.) **Otology, Rhinology and Laryngology:** Dr. W. N. Robertson, Wickham Terrace, Brisbane.

(viii.) **Diseases of Children:** Dr. A. Jefferis Turner, Wickham Terrace, Brisbane.

(ix.) **Naval and Military Medicine and Surgery:** Dr. G. P. Dixon, C.B.E., Wickham Terrace, Brisbane.

(x.) **Neurology and Psychological Medicine:** Dr. T. H. R. Mathewson, Brunswick Street, New Farm, Brisbane, and Dr. J. R. Nicoll, Hospital for Insane, Toowoomba.

(xi.) **Dermatology and Radiology:** Dr. V. McDowall, Preston House, Queen Street, Brisbane.

Section of Pathology and Bacteriology.

The Honorary Secretary of the Section of Pathology and Bacteriology announces that the following subjects have been selected for special discussion in the Section:—

(i.) Enteric infections and the carrier problem.

(ii.) Tropical relapsing fevers.

(iii.) Regeneration of injured nerves, with special reference to the latest work on the subject.

(iv.) Diagnosis of venereal diseases (in combination with the Section of Dermatology).

Members are informed that the special subjects selected for discussion in the several Sections are not the only subjects that will be dealt with. The Secretaries of the Sections will be pleased to receive intimations from members who desire to read papers on other subjects.

PUBLIC HEALTH OF NEW SOUTH WALES.

(Continued from Page 607.)

Strickland Convalescent Hospital.

The Strickland Convalescent Hospital for Women at Rose Bay, Sydney, is a charming institution, situated in beautiful surroundings. It has the purpose of providing a complete rest under medical supervision for women who have recovered from serious illness and for those who are suffering from overwork and worry. There are ten wards in the institution, the majority containing three beds, while in some instances accommodation is provided for mothers, with cots for their babies. There were 32 patients in the institution on the first day of the year and 531 admitted during the course of the year. It would appear that the inmates stay, as a rule, for about three weeks.

David Berry Hospital.

The Medical Officer, Dr. C. W. George, as usual, publishes a short report of the year's work at the David Berry Hospital. The total number of patients admitted and re-admitted was 226. The number of those discharged was 211, while there were 17 who died. No statement is made concerning the number of patients re-admitted, and consequently the general mortality calculated on the figures given may be too high. Calculated in the usual way, it works out at 7.06%. From the table appended, it appears that patients are admitted for all forms of disease, except venereal dis-

ease. There were 13 cases of diphtheria, with two deaths. There were 15 cases of appendicitis. Only a few instances of each of the other diseases occurred. The number of operations performed during the year was 107, including minor operations.

Rookwood State Hospital for Men.

At the Rookwood State Hospital and Asylum for Men at Lidcombe there is accommodation for 628 patients in the thirteen hospital divisions and for 743 asylum inmates. On January 1, 1918, there were 623 patients in the Hospital. The number admitted during the year was 2,153. The number of those discharged was 1,643 and of those who died 519. The total mortality was therefore 21.1%. A short report is issued by the Medical Superintendent, Dr. R. A. Fox, who enumerates the operations performed by each of the honorary medical officers and records the changes in the personnel of the staff. No information of the nature of the work undertaken and the results obtained are published.

Liverpool State Hospital for Men.

The State Hospital and Asylum for Men at Liverpool is not so large an institution as that at Lidcombe. On the first day of the year there were 549 persons in the institution, including 253 in the hospital. The number of persons admitted to the institution was 1,540. The number of admissions to the hospital wards was 907. There died within the institution 184 persons. Apparently four of these persons died outside the hospital wards. The mortality, calculated by the usual formula, for the whole institution is 11.67% and not 10.23%, as stated in the report, while the mortality in the hospital division itself was just under 20%. Of 180 deaths, 65 were due to cancer and 34 to organic diseases of the heart.

It appears that patients requiring surgical treatment are transferred to the Rookwood Hospital, although minor operations are undertaken at Liverpool. There is an Ophthalmic Department, at which the necessary treatment is given to the patients. During the year ten ophthalmic operations were performed. A district ward has been instituted, to which persons suffering from general diseases or accidents may be admitted from the immediate neighbourhood of the institution. The number of patients admitted to this ward was 98. In connexion with it there is an out-patients' department for patients of both sexes.

The cancer ward is an institution for the reception of patients suffering from inoperable or recurrent malignant growths. The Medical Superintendent points out that no effort is spared to make the lot of these sufferers as comfortable as possible. He anticipates that an extension will become necessary in the near future. The number of patients admitted to the ward was 95. There were, in addition, 31 patients under treatment on the first day of the year. No less than 54 of these patients died. Of the remainder, 42 were discharged and 30 were still under treatment at the end of the year.

Accommodation is provided for 40 persons suffering from venereal disease. The majority of the patients are young persons who seek energetic treatment and who are anxious to leave the institution as soon as possible. Provision is made for an early discharge by the institution of arrangements for the continuation of treatment in the out-patients' department after discharge. In all cases the diagnosis is confirmed by laboratory methods. There were in the ward 21 patients under treatment on January 1, 1918. During the course of the year 265 patients were admitted and on the last day of the year there were again 21 patients whose treatment had not been completed. The laboratory work in connexion with the complement deviation test, as well as the histological examination of tumours and the identification of bacteria, is carried out at the Microbiological Department in Sydney.

Newington State Hospital for Women.

The institution formerly known as the Newington Asylum and now called the Newington State Hospital and Asylum for Women is said to have accommodation for between 700 and 800 patients. The margin is a large one. On January 1, 1918, there were 696 persons within the institution, of whom 303 were in the hospital division. The admissions numbered 1,334, while the admissions to the hospital numbered 879. During the course of the year 1,162 patients were

discharged from the institution, including 891 from the hospital. The mortality, calculated on the basis of the total population, was 14.49%, while, calculated on the hospital population, it was 19.84%. It is stated in the report that the number of deaths is equivalent to 16.4% of the cases treated. This error appears to be a common one, since no allowance is made for the fact that the treatment is incomplete in all patients still in the hospital at the end of the year. The formula of the Registrar-General has been accepted as the best method of overcoming this error.

It is interesting to gather from the list of complaints for which the patients were admitted, the nature of the clinical material not used for teaching or research purposes. A large number of the patients, it is true, are old and alcoholic persons, whose condition is due rather to social defects than to the failure of medical treatment. On the other hand, we note in the list many diseases due to cardio-vascular affections, the pathology of which should be closely studied. There are numerous forms of ulcers which, as Dr. Corlette has recently shown, deserve more attention than has been given to them in the past. The nervous affections include many obscure processes and investigation should be carried out to ascertain, at all events, the nature and course of the physical changes essential to these affections. Again, the diseases of the respiratory and of the genito-urinary systems offer an almost inexhaustible field for clinical and pathological research.

State Asylum for Aged and Infirm Men.

There is an institution in Parramatta called the State Asylum for Aged and Infirm Men, where a considerable number of persons find shelter and comfort in the late autumn of life. There were in this institution 130 inmates who had been admitted before the beginning of the year. The number of admissions during the year was 848. It is strange that there should have been 825 inmates discharged during the year from an institution existing for the benefit of aged and infirm persons. Only two deaths took place during the year. It appears, however, that 104 of the persons discharged were transferred on the order of the visiting medical officer for medical treatment in other institutions.

State Hospital for the Blind.

The State Hospital and Asylum for the Blind and Men Suffering from Defective Sight and Senility is situated in Parramatta. The average number of blind inmates in the institution was 33, while the total average population was 172.6. During the course of the year meals were supplied to 971 casual inmates and beds to 533.

(To be Continued.)

ADDRESS OF WELCOME TO HIS ROYAL HIGHNESS THE PRINCE OF WALES.

Enclosed in this issue will be found a photographic reproduction of the illuminated address of welcome addressed by the Federal Committee of the British Medical Association in Australia to His Royal Highness the Prince of Wales on his arrival in Australia.

The following reply has been received by Dr. W. T. Hayward, C.M.G., Chairman of the Federal Committee:—

Melbourne,
May 28, 1920.

The Chairman,
British Medical Association in Australia.

Sir: I am directed by the Prince of Wales to convey to you his sincere thanks for the loyal address of welcome presented by you yesterday on behalf of the Federal Committee and the members of the British Medical Association in Australia. His Royal Highness deeply appreciates the invaluable and unremitting labours of the medical profession throughout the Empire during the great war and sends you his best wishes for your prosperity and advancement. He is grateful for your good wishes and will be happy to convey your assurances of loyalty to His Majesty the King.

I am,

Your obedient servant,
(Signed) E. W. M. GRIGG,

Lieutenant-Colonel,

Secretary to His Royal Highness the Princes of Wales.

The death is announced of Dr. Phillip Thornton, of Ipswich, Queensland.

Correspondence.

THE LIGATURE OF THE UTERINE ARTERIES.

Sir: Dr. Frank Nyulasey under the heading "Ligature of the Uterine Arteries" writes: "Dr. Norman Dunlop appears to raise the question as to who first deliberately tied these vessels in the operation of hysterectomy."

The answer to this question will depend on the interpretation of the word deliberately. If we go back to the first cases of hysteromyomectomy reported, we shall find that Clay (1843), Bellinger (1846), Burnham (1853) and Kimball (1853) were the pioneers in this field and as each performed a sub-total hysterectomy and treated the stump by the intra-peritoneal method, it follows that they tied the ovarian and uterine arteries. In the report of Burnham's case it is distinctly stated that the uterine arteries were tied. Clay, of Manchester, after failing in his first operation in 1843, performed the operation successfully in 1863, doing a supra-vaginal amputation of the uterus. After this period the intra-peritoneal treatment of the pedicle was almost abandoned in England for thirty years, because Köberle introduced in 1863 the extra-peritoneal method, using the *serre nœud* and this was soon adopted by Péan in France, Keith in England and later on by Hegar in Germany. For a time, then, the bugbear of hæmorrhage from the stump was over and the uterine arteries were neglected. But the extra-peritoneal method of treating the pedicle did not satisfy all surgeons, so Schröder, the foremost gynaecologist of Germany, introduced his intra-peritoneal method. Now Schröder died about 1886, and if anyone will look up an edition of his famous *Handbuch der Krankheiten der Weiblichen Geschlechtsorgane*, he will see that in the operation that he did so much to develop, he first tied the ovarian arteries, then the round ligaments, then divided the broad ligaments up to the side of the uterus. After this he threw an elastic band round the uterus below the tumour, and then, before removing the tumour, he tied the uterine artery on each side. This operation in his hands was quite successful.

Now the question may be asked, did these men deliberately tie the uterine arteries? They certainly did. They knew that when they came to cut the myoma away from the cervix, the bleeding from the cervix was derived from branches of the uterine artery and so they secured these vessels. But I think the point that wants to be brought out is, that none of them realized the cardinal fact that if they secured the uterine arteries, they need not trouble much about bleeding from the pedicle. They were all simply obsessed by fear of hæmorrhage from the pedicle. Nothing could better illustrate this than by quoting Brennecke as an instance. This surgeon operated on twenty-one cases without a death—quite a marvellous record for that period—and he tells us that he used fifty separately-tied catgut sutures in bracing the flaps of the pedicle together, and added eighteen more when closing the peritoneum over the stump.

So fearful were operators of the pedicle that Bardenheuer in 1881 performed panhysterectomy for the first time in Germany for fibro-myoma of the uterus. Of course in doing such an operation it was necessary for him to deliberately tie the uterine arteries.

But this operation did not have many supporters at that period, and eight years later (1889) Stimson, of New York, proposed and practised the systematic ligature of the ovarian and uterine arteries in their course as preliminary and essential steps in hysterectomy. Mass ligatures applied to the broad ligaments were done away with; and later on Baer, of Philadelphia, in 1892, and Pryor, of New York, in 1894, gave us an improved technique which became known to the whole world when Howard Kelly published the first edition of his famous "Operative Gynecology."

I think we are now in a position to answer Dr. Nyulasey, and say that while the operators before 1889 in treating the pedicle of the uterus by the intra-peritoneal method were

fully alive to the fact that the uterine arteries had to be secured, yet they did not realize that this should have been the essential and deliberate step in the technique. Stimson pointed this fact out and from that moment a new technique sprang into existence, its essential points being the deliberate ligation of the ovarian and uterine arteries and the insertion of but a few sutures in the uterine pedicle.

Yours, etc.,

W. J. STEWART MCKAY.

Sydney, June 21, 1920.

ETHYL CHLORIDE AS AN ANÆSTHETIC.

Sir: I read with considerable interest the letter by "Stertor" re dental anæsthesia in your issue of June 19.

Personally I would far rather have the well-trained dental student administer a dental anæsthesia to me than I would the average medical man.

Taking us all round, the medical man is not as a general rule good at dental administrations, especially in the handling of such drugs as ethyl chloride or somnoform. It is not many years since we looked upon the veterinary surgeon as almost an outsider, and called him a "horse doctor" and thought that any fool could be a "vet.," but the world has advanced since those days; to-day we know the "vet." as a man highly trained and skilful in his work and whose scientific training comes near our own.

The same remark applies to-day to the dentist; he goes through a very careful and scientific course, not far behind our medical training in stiffness.

In the case of our dental students in Melbourne their anæsthetic course is a very practical one; in fact, for short dental anæsthesias and the handling of such drugs as somnoform and ethyl chloride a long way ahead of our medical students and I can speak from practical experience of both.

In his third year, besides having to attend lectures in anæsthesia, each student has to give 40 general anæsthetics and in his fourth year 60, making 100 in all; these anæsthesias are either ethyl chloride or somnoform. The record of the Melbourne Dental Hospital is over 36,000 somnoform or ethyl chloride administrations in the past 14 years without one single death and the administrators have been mainly dental students; this fact shows the training has not been in vain.

In every case the anæsthetic is administered in the upright position.

In the Royal Dental Hospital, London, there is a record of over 20,000 cases in 12 years without trouble under ethyl chloride and there also, as in many other hospitals, the upright position has been adopted for dental anæsthesia.

In my own work I even give ether and chloroform in the upright position for dental extractions and I certainly believe that it is the safer and more common-sense position, in that less anæsthetic is required, the patient goes under more quietly and no unnecessary strain is thrown on the heart in that the patient is less likely to struggle; and, moreover, should any unfortunate accident arise, I have more to fall back upon than the man who has anæsthetized his patient with his head low and congested.

I always aim at what I call a stage of anæsthetic sleep in handling both ether or chloroform for dental work.

I am a firm believer in training the dental students in the proper administration of such drugs as ethyl chloride or somnoform and in so doing I do not think that I am taking bread and butter out of the mouths of the medical profession and I certainly think that I am benefitting the public. There are thousands of cases in which a patient cannot afford to have a general anæsthetic administered by a medical man for dental work and which from my own experience and observation I certainly think the well-trained dental administrator is quite as capable of handling as the average medical man.

We have to advance with the times and the dental profession and training are not what they were some years ago. The dentist's calling is a highly scientific one to-day and he has to go through a very stiff course before he obtains his degree and that course should include a by no means inferior one in dental anæsthetics.

Of course ethyl chloride is by no means fool-proof as an anæsthetic, but I certainly think that, having been taught its proper means of administration, with a certain amount of air during induction and by a push, and not a knock-out method, I believe that it is quite as safe and I am not excluding nitrous oxide, as any other form of anæsthesia, for short operations requiring from one to three minutes' anæsthesia.

Yours, etc.,

R. W. HORNABROOK.

120 Collins Street, Melbourne,
June 22, 1920.

THE ACTION OF NOV-ARSENO-BILLON.

Sir: I would be very glad to know the experiences of other medical men in using nov-arseno-billon. Mine has not been encouraging. The supply we get here, both from the Government and for private use, seems to possess disquietingly toxic properties. We were supplied with kharsavan for the use of the public hospital until recently and found it very satisfactory. One case of mine had five doses of 0.6 to 0.9 grm. kharsavan injected by subcutaneous puncture into the vein with good results in clearing up the lesions and with no reaction in the way of vomiting or malaise and a rise of temperature on one occasion only as high as 99.4°. She had slight local soreness round the puncture for a few days. When her sixth dose was due we were supplied with nov-arseno-billon, which was injected under precisely similar conditions. She vomited on the table and felt very sick; her temperature rose to 100.4°, and her arm, though not showing much outward sign, was intensely painful for five days.

Another case had had three very satisfactory doses of kharsavan injected into the dissected vein, and with no ill effects beyond a slight rise of temperature. Her fourth dose was of nov-arseno-billon and she vomited on the table, had a sharp rise of temperature and was decidedly ill for three days.

A third case was carefully prepared by rest in bed beforehand and by injections of sodium cacodylate and the dose given was only 0.3 grm. on three occasions. On each occasion he had a most disquieting rigor with cyanosis some thirty minutes after the injection and after the third dose he had bad cramps and was so ill that no further injection was given.

A fourth case, which occurred yesterday, was a man who had had a course of seven kharsavan injections intravenously without the slightest ill effect. After an interval of five months it was necessary to give him further treatment and yesterday 0.6 grm. of nov-arseno-billon were injected. He had very bad cramps, felt so ill that he begged us to send for a priest, fearing he was dying, and his temperature this morning is 103°.

I have every confidence in the chemist who prepares the solutions. I have discussed the matter with him and his kharsavan solutions have certainly given no trouble. I am as a result of this experience unwilling to use the drug in cases, of which there are several requiring treatment, in which this irritant action would be extremely dangerous—as, for instance, intramuscularly in children, or in another case where there is a history of nephritis. I don't know if this experience of mine is general, but would be glad of any information I can get on the subject.

Yours, etc.,

ARTHUR E. BROWN.

"Benelle," Colac, Victoria,
June 23, 1920.

SCARLET FEVER AFTER TONSILLECTOMY.

Sir: It is an interesting coincidence that the letter of Dr. M. McKenna on the above subject should have appeared in the same issue of the *Journal* (June 19) as the review of Dr. F. V. G. Scholes's lectures on scarlet fever, etc. One can only regard the cases following tonsillectomy as a co-

¹ i.e., 37.4° C.

² i.e., 38.0° C.

³ i.e., 39.4° C.

incidence. We know but little really of the spread of zymotic diseases. Personally I think there is a strong analogy between the life history of disease germs and that of the seed life of plants. Some die altogether, some develop very rapidly, others have a latent period and an active generation with the returning season, some lie buried or are deposited in place unsuitable for development until they obtain a suitable environment, such as the wattle and a bush fire. Others are thickly spread over wide areas and occasional specimens are seen in isolated or out of the way spots or in gardens. I have seen big areas of wild *Datura stramonium* in Gippsland, Victoria, and a few weeks since, going up the ramp from Kirribilli Wharf, I saw an isolated specimen near one of the trees bounding the side walk. It is much the same with disease; sometimes we get big epidemics of scarlet fever and then, again, isolated cases, such as your correspondent refers to. I have seen many curious developments of scarlet fever, some of which I will briefly refer to. Although I have been through epidemic after epidemic and attended many odd cases up to the present, I have not taken the disease. I say up to present advisedly, for in 1879 I was clinical clerk for Dr. John Harley at St. Thomas's Hospital, London. He was giving his usual dinner to his H.P.'s and clerks. He complained that night of a sore throat and being feverish; next day he developed typical scarlatina. For three years in his younger days he was resident at the London Fever Hospital, with a high average of scarlatina cases, and he had not taken the disease. There were no cases at the time in the isolation block, nor had he seen any for some time in his private practice. None of his guests or the rest of the household developed an attack. The supposed origin was from a possibly infected cab he had ridden in about the incubation period instead of in his own brougham.

Shortly after I qualified I was doing a locum at Surbiton, where scarlet fever was very prevalent. There was a very extensive midwifery connexion. There was a prevalent idea then that scarlet fever was very prone to attack patients during the puerperium—possibly from some of the rashes in septic and puerperal fever cases closely resembling that of scarlet fever. In some cases a confinement took place with a child still in bed and peeling in the same room, neither mother nor infant suffering in any way. The oldest patient I attended was well over 70 years. When peeling occurred, long strips came off like wall paper from a damp room. Her attack was in November, but she danced with her grandchildren on Xmas Day as she declared she would. Each case I saw was in a fresh house.

Early in 1882 I was surgeon in the Union Line. A few days after leaving Cape Town a little girl of five developed a severe attack of scarlet fever. We had some forty other children on board. The child was isolated, developed a hyperpyrexia and succumbed on the fifth day before peeling began. No other cases followed. I was fortunate in having the old family doctor amongst the passengers and getting his advice in consultation. In tracing a possible cause it appears that some little time before there had been a severe outbreak in the parents' up-country residence. The family had been in Cape Town for some time, but about a week before sailing a box of clothes had been sent down and it was supposed that the fomites had been conveyed by this means.

My first few weeks in Australia in 1884 covered the tail end of a severe epidemic of scarlet fever and measles. Later at Mt. Barker, in South Australia, several interesting outbreaks occurred. On one occasion three cases occurred in houses widely separated and no general epidemic. At another time the youngest child in one house had it and there were four cases in another. Two of these were up and peeling freely, two others had the rash well out. The only son had just come back from the Children's Hospital in Adelaide with double tubercular hip. He died. Knowing the custom of allowing the friends to see the body laid out, I pointed out the risks and the parents promised my advice would be carried out. I was very vexed to find some thirty children had been allowed to go through the sick room to see their old playfellow in his coffin. I expected a big outbreak. Strange to say, not another case of scarlet fever occurred as a result. At this time there was a single case in the railway cottages at Mt. Barker Junction, where there were many other children. No other cases followed.

Measles again appear sporadically as well as in epidemics. I referred recently to two cases appearing on a transport the day before reaching England (58 days voyage) and no spread. When my younger son was 2½ years old he developed a typical severe attack of measles. I had no other cases under care and none were being reported. It was months before I heard of another case.

Dr. Scholes's experience with regard to measles in Australia being a relatively mild affection, easily missed, seems strange. It is easily treated in children, but in adults is a most serious affection, pneumonia and bronchitis being only too common complications and the mortality is often high. Convalescence is often very protracted.

Yours, etc.,

LEONARD W. BICKLE, F.R.C.S. (Edin.), etc.,

"Ormiston," Kirribilli Point, North Sydney,

June 26, 1920.

THE SURGICAL ASSOCIATION OF MELBOURNE.

Sir: Members of the British Medical Association in Australia at large cannot but be dismayed at the announcement in *The Medical Journal of Australia* of June 19, 1920, of the constitution of the recently formed Surgical Association of Melbourne.

The primary object of the Branches of the British Medical Association in Australia is scientific, the improvement of medical knowledge and skill, and such object is obtained by means of meetings of members, to which all, no matter how junior, may come, and the publication of reports of such meetings and other scientific articles in a journal owned by the Branches.

The objects of the Surgical Association of Melbourne are ideal and coincide with the objects of the British Medical Association. But the constitution of this Surgical Association is appalling and appears to be an endeavour to make surgery a close corporation, by limiting its membership in numbers, confining it to the active and consulting staffs of certain general hospitals and "any surgeon in active practice in Victoria of acknowledged high repute as a surgeon."

The proposal that the reports of discussions are not to be published is to my mind another means to make surgery a close corporation. In Australia, with its widely scattered towns and distances, the opportunity of attending meetings of the various Branches is denied to a large proportion of the medical profession. It is by the means of the papers read and the discussions being published in the same issue of the journal that the standard of medical practice is raised and scientific knowledge increased (the term medical being used in its wide sense and embracing all branches of medicine).

Surely that must be to the advantage of the public at large and after all the aim of our profession in increasing its knowledge and skill is that it is ultimately for the public good.

The formation of associations by men who confine their practice within certain well-defined limits, such as ophthalmic surgeons, or ear, nose and throat surgeons, is on a different footing.

A surgical association as proposed may be quite right in England or America, where there are post-graduate courses which practitioners may attend, but in Australia, with no such advantages, I see nothing to be gained.

I would appeal to the Surgical Association of Melbourne to alter its constitution and become a surgical sub-section perhaps of the Victorian Branch of the British Medical Association, whereby its meetings and discussions are open to all members, either personally or through our journal.

Yours, etc.,

T. W. LIPSCOMB.

Sydney,

June 25, 1920.

Books Received.

OCCUPATIONAL AFFECTIONS OF THE SKIN: THEIR PREVENTION AND TREATMENT. WITH AN ACCOUNT OF THE TRADE PROCESSES AND AGENTS WHICH GIVE RISE TO THEM, by R.

- Prosser White, M.D., M.R.C.S.; Second Edition; 1920. London: H. K. Lewis & Co., Ltd.; Demy 8vo., pp. 360, illustrated by 24 plates. Price, 25s. net.
- AIDS TO ELECTRO-THERAPEUTICS, by J. Magnus Redding, F.R.C.S.; 1920. London: Baillière, Tindall & Cox; Foolscap 8vo., pp. 196, with 16 figures in the text. Price, 5s. net.
- PRACTICAL TROPICAL SANITATION: A POCKET BOOK FOR SANITARY INSPECTORS IN THE TROPICS, by E. P. Minett, M.D., D.P.H., etc.; 1920. London: Baillière, Tindall & Cox; Crown 8vo., pp. 130, with 88 figures in the text. Price, 4s. 6d. net.
- SYPHILIS IN GENERAL PRACTICE, WITH SPECIAL REFERENCE TO THE TROPICS, by K. K. Chatterji, F.R.C.S.I., with an introduction by W. D. Sutherland, C.I.E., M.D.; 1920. Melbourne: Butterworth & Company (Australia), Ltd.; Demy 8vo., pp. 382, with 56 original illustrations. Price, 18s. net.
- THE COOLIDGE TUBE: ITS SCIENTIFIC APPLICATIONS, MEDICAL AND INDUSTRIAL, by H. Pilon; Authorized Translation; 1920. London: Baillière, Tindall & Cox; Crown 8vo., pp. 96, with 59 figures in the text. Price, 7s. 6d. net.
- ANTI-TUBERCULOSIS RECONSTRUCTION, by "D.P.H., R.C.P.S.I."; 1920. Dublin: Maunsell & Company, Limited; Crown 8vo., pp. 38. Price, 6s. net.
- CATECHISM SERIES: SURGICAL ANATOMY; Second Edition, Part I.; 1920. Edinburgh: E. & S. Livingstone; Pocket size, pp. 72. Price, 1s. 9d. net.
- ENCYCLOPEDIA MEDICA; Second Edition, under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E.; Volume VI.: Heat Fever to Intertrigo. Edinburgh and London: W. Green & Son, Ltd.; 1919. Sydney: Butterworth & Company (Australia), Ltd.; Royal 8vo., pp. 658. Price, £1.

Medical Appointments.

The appointment of Dr. R. S. Whitford (B.M.A.) as Public Vaccinator at North Carlton, of Dr. A. R. Thorne (B.M.A.) at Ouyen, and of Dr. M. D. Nesbitt (B.M.A.) at Lancefield, Victoria, is announced in the *Victoria Gazette*.

Dr. W. K. Collins has been appointed District Medical Officer and Public Vaccinator at Donnybrook and Visiting District Medical Officer at Kirup, Western Australia.

It is announced that Dr. A. E. Vivian has been appointed Resident Medical Officer at the Government Hospital, Kalgoorlie, Western Australia.

Dr. G. W. Pallthorpe (B.M.A.) has been appointed District Medical Officer and Public Vaccinator at Youanmi, Western Australia.

Dr. R. S. Scott (B.M.A.) has been appointed Government Medical Officer at Greta, New South Wales, in place of the late Dr. W. H. Low.

The appointment of Dr. W. Leahy (B.M.A.) as Government Medical Officer at Wagga Wagga, is announced in the *New South Wales Government Gazette*.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges (other than the Grand United Order of Oddfellows and the Melbourne Tramways Mutual Benefit Society), Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital. Stannary Hills Hospital.

Branch.	APPOINTMENTS.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

- July 8.—Q. Branch, B.M.A., Council.
 July 9.—N.S.W. Branch, Clinical.
 July 9.—S. Aust. Branch, B.M.A., Council.
 July 13.—N.S.W. Branch, B.M.A., Ethics Committee.
 July 13.—Tas. Branch, B.M.A.
 July 15.—Vic. Branch, B.M.A., Council.
 July 16.—Eastern Suburbs Med. Assoc. (N.S.W.).
 July 17.—Northern Suburbs Med. Assoc. (N.S.W.).
 July 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
 July 21.—W. Aust. Branch, B.M.A.
 July 22.—Q. Branch, B.M.A., Council.
 July 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
 July 28.—Vic. Branch, B.M.A., Council.
 July 29.—S. Aust. Branch, B.M.A.
 July 30.—N.S.W. Branch, B.M.A.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated. All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney. (Telephone: City 2645.)

We are seeking copies of our issues of February 14 and 28, 1920. There has been an unusual demand on our stock, which is now depleted. Members who do not keep *The Medical Journal of Australia* for binding, are requested to send us their copies, on receipt of which the usual payment of the face value will be made.

